1973
USDA Forest Service Research Paper PNW-154

Lumber Recovery from Old-growth Coast Douglas-fir

Paul H. Lane
John W. Henley
Richard O. Woodfin, Jr.
Marlin E. Plank

U.S. Pacific Northwest Forest and Range Experiment Station
U.S. Department of Agriculture Forest Service
Portland, Oregon

ABSTRACT

Lumber grade yields and recovery ratios obtained for old-growth Douglas-fir logs are presented for two log scaling and grading practices. The logs were bucked from trees selected from commercial sawtimber stands throughout the west-side Douglas-fir region. The lumber yield information is presented for 2,980 woods-length logs scaled by Forest Service west-side log scaling rules. The lumber yield information is also presented for 4,974 sawn-length logs essentially scaled by Forest Service east-side log scaling rules.

KEYWORDS: *Douglas-fir, lumber, forest industries.*

CONTENTS

INTRODUCTION

Douglas-fir sawtimber found west of the Cascade Range in Washington and Oregon and west of the Sierras in northern California constitutes one of the most important raw material resources in the United States.[1/]

The volume of commercial Coast Douglas-fir sawtimber is estimated to be in excess of 394 billion board feet. About 10 billion board feet of Coast Douglas-fir is harvested annually. This is about 55 percent of the total softwood lumber production in the United States.

There is an urgent need for better methods of appraising the quality of this important timber resource. Estimates of the recovery that can be obtained from Coast Douglas-fir sawtimber are needed by forest land managers, timber buyers, and timber processors for efficient utilization of the resource for lumber, veneer, pulp, or other products.

The Pacific Northwest Forest and Range Experiment Station with the help of other public agencies and the forest products industry has made an extensive study of Coast Douglas-fir. The study obtained yields of lumber and veneer from more than 1,000 Douglas-fir trees selected from typical commercial sawtimber stands throughout the Coast Douglas-fir region.

This report presents the lumber yield information obtained from the old-growth portion of the timber sample, according to current log grading and scaling practices. The distinction between old growth and young growth was arbitrarily set at 100 years. The report provides forest managers, buyers, and timber processors with lumber recovery information by log size and log grade that is considered to be representative of Coast Douglas-fir and useful in appraising, harvesting, and processing such timber.

This report is one of several from the study. The veneer recovery information is being prepared for a comparable report. A separate report[2/] describes new and improved log grades developed by studying the quality characteristics and yields of the sample trees.

STUDY PROCEDURES

SAMPLING

The study trees were selected from approximately 100 sample areas in California, Oregon, and Washington and processed at 10 sawmills and 10 veneer plants as shown in figure 1. Trees were selected with the objective of obtaining a representative sample of tree size and quality in Coast Douglas-fir commercial sawtimber. Tree size, stem quality, and site index were the principal stratifications used in selecting sample trees. Emphasis was given to obtaining representative trees in the stratifications. The areas were located to provide the desired stratifications in size and site and to sample, insofar as possible, the main environmental factors of forest type, stand density, elevation, aspect, and soil type. Within each sample area, individual trees were selected on the basis of size and stem quality. Stand age was determined from ring counts of the stumps. Trees selected from young-growth stands (less than 100 years old) are not included in this report.

1/ Botanically considered to be the coast variety of Douglas-fir, *Pseudotsuga menziesii* (Mirb.) Franco var. *menziesii*.

2/ Paul H. Lane, Richard O. Woodfin, Jr., John W. Henley, and Marlin E. Plank. New timber cruising grades for Coast Douglas-fir. USDA For. Serv, Res. Pap. PNW-151, 12 p., illus. Pac. Northwest For. & Range Exp. Stn., Portland, Oreg. 1973.

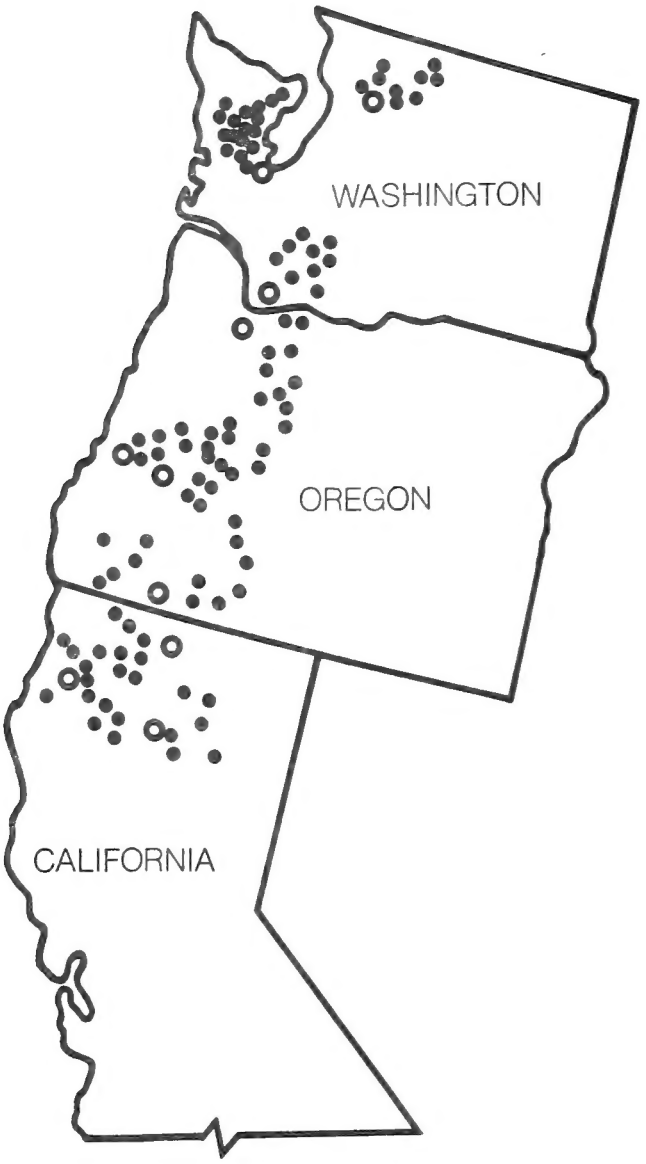

Figure 1.--*Location of the timber sample areas (•) and study sawmills (◘).*

The total sample was not intended to be necessarily representative of a typical log mix for any particular sawmill or veneer mill. The objective was to obtain lumber and veneer recovery information from log size and grade categories so that the recovery information would be applicable to any log mix stratified by size and grade.

Approximately two-thirds of the trees selected in each sample area were designated for lumber processing. The remainder were peeled to obtain veneer recovery information.

The study trees were felled and bucked into saw logs according to the normal practice of each study mill. Each log was numbered in the woods to identify its origin with respect to sample area, tree, and position in the tree. The logs from each area were then hauled to the mill for scaling and grading prior to sawing.

LOG DIAGRAMING, SCALING, AND GRADING

The visible surface and end characteristics of each log were recorded so that the relationship of a log's external characteristics to its lumber grade yield could be studied in detail for purposes of log and tree grade development. This record also allowed the logs to be carefully graded after they were bucked and barked for sawing.

Study logs were graded and scaled in accordance with practices in use in the Coast Douglas-fir region. The logs were scaled and graded in the lengths they were delivered from the woods according to the Forest Service instructions for west-side log scaling and grading.[3/] A summary of the log grading specifications is in Appendix I. The specifications are a modified version of Bureau rules.[4/] The modification is for use in cruising standing trees where log and defects are not considered in determining grade. The scale was essentially determined by Bureau rules.

[3/] U.S. Forest Service R-6 Supplement to National Forest Log Scaling Handbook for West-Side Log Scaling. October 1965. U.S. Forest Service Log Grade Description for Douglas-fir. Form R-6 2440-19D (March 1965).

[4/] Rules used by the Columbia River, Puget Sound, Grays Harbor, Southern Oregon, and Northern California Log Scaling and Grading Bureaus, depending upon location.

The logs were rescaled after they were bucked for sawing, normally as they entered the sawmill, according to Bureau of Land Management rules.[5/] These scaling rules follow National Forest Log Scaling Handbook rules, except for scale deduction procedures. In this scale, logs up to 20 feet in length are scaled as one segment. The woods-length logs up to 40 feet in length were scaled as one segment. The woods-length and sawn-length scaling practices also differ in procedures for determining scale diameter. In the woods-length scale, fractions are dropped, whereas diameters are rounded in the sawn-length scale. The same log grade specifications were used to determine the grade of the sawn logs. In this report, these two scaling and grading practices are referred to as the "woods-length scale" and the "sawn-length scale." The scales and grades were determined by public agency check scalers or scaling supervisors. Volumes are in terms of the Scribner Decimal C rule.

The distribution of logs by woods length and grade for the sample is shown in table 1. The woods lengths vary from 8 to 40 feet with 32 feet and 40 feet being the most common lengths. Figure 2 distributes the woods-length logs among the seven log grades. There is a noticeable relative difference depending on number of logs and net scale volume. Table 2 shows the distribution of the woods-length logs by scaling diameter and log grade. These distributions indicate the general nature of this old-growth timber stand sample.

The sawn-log length and diameter distributions are shown in tables 3 and 4. Shorter lengths predominate, with 16 feet, 18 feet, and 20 feet being the most common lengths sawn. The percent distribution of the sawn-length logs by number

[5/] Bureau of Land Management Log Scaling Manual Supplements on file at the Oregon State Office, Portland, Oregon.

Table 1.--Distribution of logs by woods length and grade

Log length (feet)	Log grade							All grades
	No. 1 Peeler	No. 2 Peeler	No. 3 Peeler	Special Peeler	No. 1 Sawmill	No. 2 Sawmill	No. 3 Sawmill	
	Number							
8	0	0	0	0	0	0	6	6
10	0	0	0	0	0	7	22	29
12	0	0	0	0	0	21	82	103
14	0	0	2	0	0	25	46	73
16	19	6	2	1	1	16	59	104
17	1	0	0	0	0	1	3	5
18	2	3	3	0	0	24	58	90
20	8	16	12	2	0	56	67	161
22	0	1	1	0	0	24	37	63
24	8	9	34	13	0	88	104	256
26	0	3	7	1	0	30	49	90
28	1	1	5	0	0	41	63	111
30	0	0	0	1	0	33	30	64
32	22	30	140	56	4	297	164	713
34	2	4	41	14	0	153	48	262
35	1	0	0	3	0	5	5	14
36	0	5	25	10	0	110	68	218
38	0	0	1	1	0	28	26	56
40	5	8	45	48	0	332	124	562
Total	69	86	318	150	5	1,291	1,061	2,980

and volume between grades is shown in figure 3. There is less log volume in the sawn lengths No. 1 and No. 2 Peeler grades than for woods length. The grading procedures were factors in this difference. The woods-length grade was determined by visual inspection of the logs in the mill yard, and the sawn-length grade was determined by examination of detailed records of each log's surface characteristics.

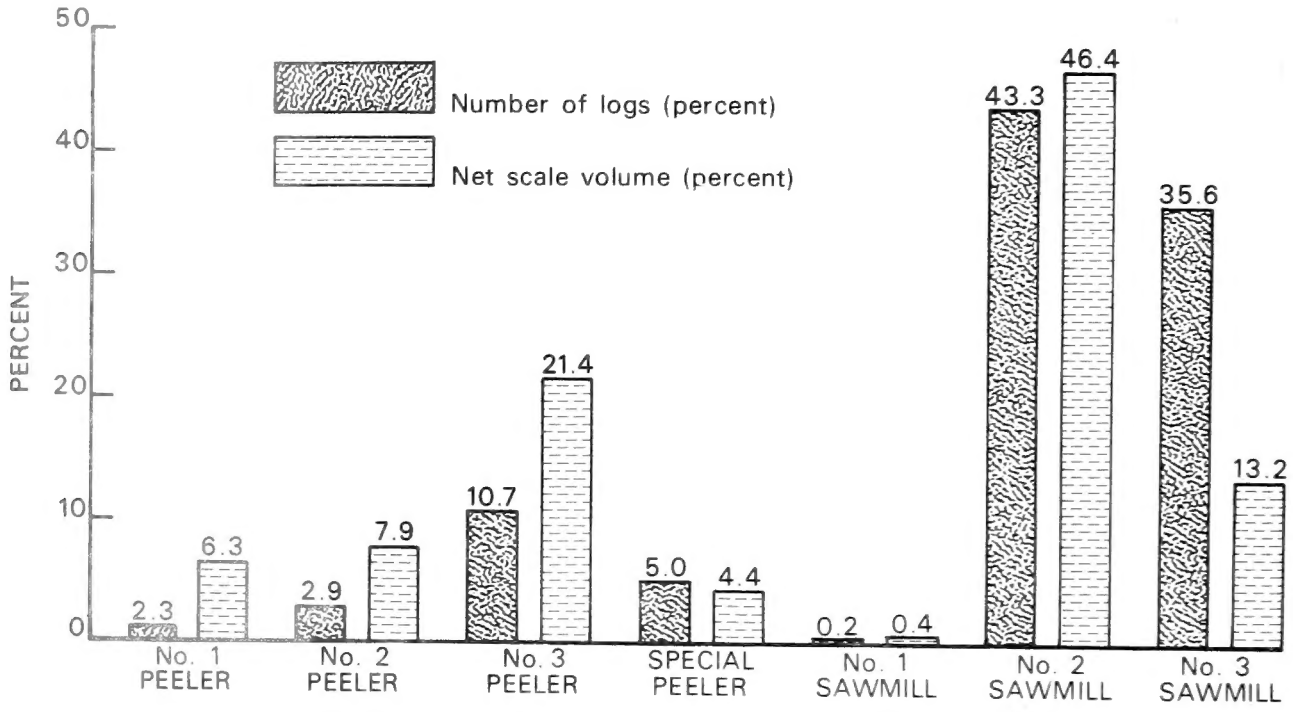

Figure 2.--*Percent distribution of woods-length logs by grade according to number and net scale volume.*

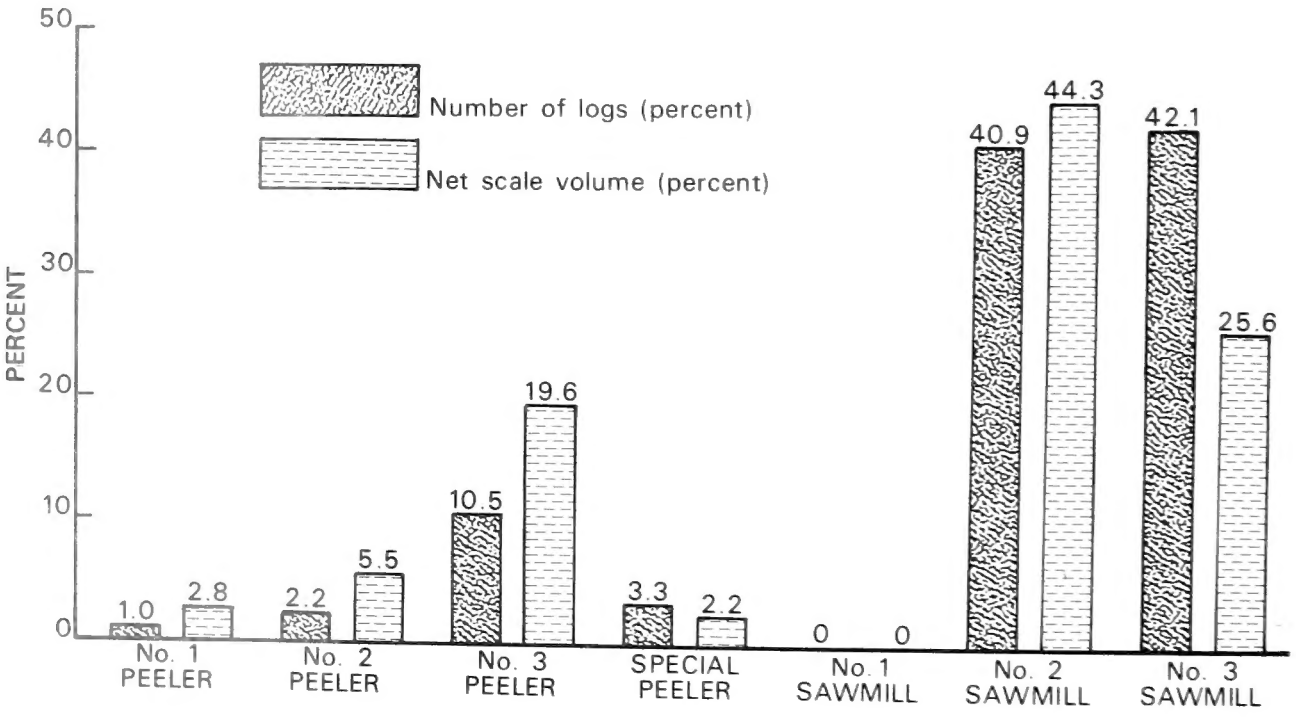

Figure 3.--*Percent distribution of sawn-length logs by grade according to number and net scale volume.*

Table 2.--Distribution of woods-length logs by scaling diameter and grade

Scaling diameter (inches)	Log grade							All grades
	No. 1 Peeler	No. 2 Peeler	No. 3 Peeler	Special Peeler	No. 1 Sawmill	No. 2 Sawmill	No. 3 Sawmill	
	Number							
5	--	--	--	--	--	--	7	7
6	--	--	--	--	--	--	56	56
7	--	--	--	--	--	--	47	47
8	--	--	--	--	--	--	97	97
9	--	--	--	--	--	--	107	107
10	--	--	--	--	--	--	96	96
11	--	--	--	--	--	--	114	114
12	--	--	--	--	--	73	35	108
13	--	--	--	--	--	65	39	104
14	--	--	--	--	--	85	37	122
15	--	--	--	--	--	68	35	103
16	--	--	--	--	--	59	37	96
17	--	--	--	--	--	84	37	121
18	--	--	--	25	--	64	25	114
19	--	--	--	16	--	53	28	97
20	--	--	--	28	--	52	25	105
21	--	--	--	24	--	51	30	105
22	--	--	--	27	--	50	23	100
23	--	--	--	30	--	58	20	108
24	--	--	16	--	--	52	22	90
25	--	--	27	--	--	49	19	95
26	--	--	19	--	--	37	19	75
27	--	--	30	--	--	32	18	80
28	--	--	18	--	--	39	12	69
29	--	--	25	--	--	39	14	78
30	0	2	13	--	0	30	9	54
31	2	2	24	--	0	32	7	67
32	2	5	23	--	0	28	11	69
33	3	2	13	--	0	34	2	54
34	3	3	13	--	0	25	5	49
35	3	8	12	--	1	17	4	45
36	3	5	8	--	0	20	2	38
37	2	7	9	--	0	13	3	34
38	4	3	14	--	2	13	0	36
39	8	6	12	--	0	12	4	42
40	2	3	7	--	1	9	2	24
41	2	4	4	--	0	9	1	20
42	5	3	6	--	0	3	2	19
43	4	5	4	--	0	7	3	23
44	1	5	7	--	0	3	2	18
45	2	4	2	--	0	4	0	12
46	4	3	2	--	0	4	1	14
47	4	1	3	--	0	5	1	14
48	3	5	3	--	0	2	1	14
49	0	2	1	--	0	3	0	6
50	2	1	1	--	0	3	1	8
51	3	1	0	--	1	0	0	5
52	0	1	0	--	0	0	1	2
53	0	1	1	--	0	2	0	4
54	1	2	1	--	0	0	0	4
55	2	0	0	--	0	0	0	2
56	0	0	0	--	0	1	0	1
57	0	0	0	--	0	1	0	1
58	0	0	0	--	0	0	0	0
59	2	0	0	--	0	1	0	3
60	0	0	0	--	0	0	0	0
61	0	1	0	--	0	0	0	1
62	0	0	0	--	0	0	0	0
63	1	1	0	--	0	0	0	2
64	0	0	0	--	0	0	0	0
65	0	0	0	--	0	0	0	0
66	0	0	0	--	0	0	0	0
67	1	0	0	--	0	0	0	1
Total	69	86	318	150	5	1,291	1,061	2,980

Table 3.--Distribution of logs by sawn length and grade

Log length (feet)	Log grade							All grades
	No. 1 Peeler	No. 2 Peeler	No. 3 Peeler	Special Peeler	No. 1 Sawmill	No. 2 Sawmill	No. 3 Sawmill	
	Number							
8	0	0	0	0	0	2	9	11
10	0	0	0	0	0	6	40	46
12	0	2	11	6	0	56	185	260
14	2	18	40	2	0	155	242	459
16	34	47	251	90	0	749	565	1,736
17	0	0	1	0	0	2	3	6
18	9	16	72	18	0	286	318	719
20	3	15	75	25	0	522	471	1,111
22	1	7	14	8	0	64	50	144
24	2	5	38	12	0	120	131	308
26	0	1	7	1	0	39	39	87
28	0	0	1	0	0	1	13	15
30	0	0	0	0	0	0	8	8
32	0	0	0	0	0	6	6	12
34	0	0	7	2	0	19	8	36
35	0	0	0	0	0	0	0	0
36	0	0	3	0	0	8	3	14
38	0	0	0	0	0	0	0	0
40	0	0	1	0	0	0	1	2
Total	51	111	521	164	0	2,035	2,092	4,974

SAWING, SURFACING, AND TALLYING

The study logs were sawn under normal production conditions at the study sawmills. The equipment, manufacturing methods, and product out-turn of the study sawmills were representative of general industry practice in the Coast Douglas-fir region. Mill production equipment included band headsaws, edgers, band resaws, and gang trimmers.

In accordance with study objectives, the mills cut the logs following their normal manufacturing procedures for producing optimum values of Board, Dimension, Select, and Shop lumber items. The logs were sawn during the period 1964 to 1967.

Log identity was maintained on each piece of lumber through the manufacturing process to the final point of grading and tally. The lumber was graded by, or under the direct supervision of, a quality supervisor of the Western Wood Products Association, West Coast Lumber Inspection Bureau, or the Pacific Lumber Inspection Bureau. All study lumber was graded under the West Coast Lumber Inspection Bureau's standard grading and dressing rules.[6/]

The lumber items produced were placed into the following 13 grades:

B and Better Select	No. 3 Shop
C Select	Select Structural
D Select	(Select Merchantable)
Moulding	Construction
Factory Select	Standard
No. 1 Shop	Utility
No. 2 Shop	Economy

6/ West Coast Lumber Inspection Bureau, Standard Grading and Dressing Rules for Douglas-fir Lumber, Number 15, 357 p. Portland, Oregon. March 15, 1956. Rev. 1960.

Table 4.--Distribution of sawn-length logs by scaling diameter and grade

Scaling diameter (inches)	Log grade							All grades
	No. 1 Peeler	No. 2 Peeler	No. 3 Peeler	Special Peeler	No. 1 Sawmill	No. 2 Sawmill	No. 3 Sawmill	
	Number							
6	--	--	--	--	--	--	48	48
7	--	--	--	--	--	--	35	35
8	--	--	--	--	--	--	105	105
9	--	--	--	--	--	--	123	123
10	--	--	--	--	--	--	144	144
11	--	--	--	--	--	--	152	152
12	--	--	--	--	--	106	62	168
13	--	--	--	--	--	102	69	171
14	--	--	--	--	--	109	73	182
15	--	--	--	--	--	82	85	167
16	--	--	--	--	--	100	94	194
17	--	--	--	--	--	87	74	161
18	--	--	--	21	--	83	90	194
19	--	--	--	26	--	70	80	176
20	--	--	--	25	--	86	95	206
21	--	--	--	30	--	73	66	169
22	--	--	--	24	--	74	76	174
23	--	--	--	38	--	77	59	174
24	--	--	34	--	--	69	57	160
25	--	--	27	--	--	76	64	167
26	--	--	40	--	--	65	56	161
27	--	--	33	--	--	58	55	146
28	--	--	38	--	--	66	38	142
29	--	--	30	--	--	65	42	137
30	1	6	22	0	0	51	31	111
31	0	5	22	0	0	60	32	119
32	3	10	18	0	0	54	36	121
33	2	3	33	0	0	53	20	111
34	1	7	16	0	0	54	22	100
35	4	8	28	0	0	40	16	96
36	2	3	19	0	0	38	19	81
37	2	10	17	0	0	39	9	77
38	3	6	19	0	0	30	9	67
39	1	8	13	0	0	26	12	60
40	1	5	19	0	0	22	8	55
41	4	5	9	0	0	20	6	44
42	3	2	12	0	0	16	4	37
43	3	7	12	0	0	11	4	37
44	3	4	8	0	0	12	1	28
45	0	5	6	0	0	17	8	36
46	3	3	5	0	0	7	2	20
47	2	3	6	0	0	8	3	22
48	2	0	10	0	0	8	0	20
49	3	1	5	0	0	4	0	13
50	1	1	4	0	0	5	3	14
51	0	1	3	0	0	3	1	8
52	3	0	4	0	0	1	1	9
53	0	1	2	0	0	1	1	5
54	1	2	2	0	0	2	1	8
55	1	2	1	0	0	0	0	4
56	0	0	1	0	0	2	1	4
57	1	1	0	0	0	0	0	2
58	0	0	0	0	0	1	0	1
59	0	0	2	0	0	1	0	3
60	0	0	0	0	0	0	0	0
61	0	0	0	0	0	0	0	0
62	0	0	0	0	0	1	0	1
63	0	0	0	0	0	0	0	0
64	0	1	1	0	0	0	0	2
65	0	1	0	0	0	0	0	1
66	0	0	0	0	0	0	0	0
67	0	0	0	0	0	0	0	0
68	1	0	0	0	0	0	0	1
Total	51	111	521	164	0	2,035	2,092	4,974

Each piece was tallied by its shipping dimension, grade, and log number. In some mills this tally was made after surfacing--in others, on the green chain. For the latter, the grader "pencil trimmed" where necessary, and the anticipated surfaced tally was recorded. All of the 2-inch dimension, board, and timber items were tallied in a green condition. The condition of the Select and Shop items varied, as noted in table 5. A general summary of the production characteristics of the 10 sawmills is provided in table 5.

COMPILATION OF DATA

The tally information obtained for the sawn logs was compiled to obtain lumber grade yields in board feet. In addition, the cubic volume of the logs, lumber, sawdust, and residue was calculated for each log.

The gross cubic log volume was computed by the following formula:

$$\text{Gross cubic log volume} = \frac{\pi L (D_s^2 + D_s D_e + D_e^2)}{3 \times 4 \times 144}$$

where D_s is the log scaling diameter, small end;
D_e is the log scaling diameter, large end;
L is the log scaling length.

The cubic volumes of the various lumber sizes are based on average rough green dimensions. These average dimensions were obtained by measuring a selected sample of the lumber during the course of each mill study. The sawdust volumes were calculated by using an average saw kerf thickness for each

Table 5.--A general summary of the manufacturing characteristics of the study sawmills

Study location	Production equipment 1/	Approximate production per 8-hour shift	Lumber items produced				
			Select	Shop	Boards	2-inch Dimension	Timbers
		Thousand board feet					
Washington:							
Northern Washington Cascades	BHS, E, VRS, TS	90	Green	Green	Green	Green	Green
Southern Washington Cascades	BHS, E, GS, TS	100	Green	--	Green	Green	Green
Olympic Peninsula	BHS, E, GS, TS, VRS	160	Green	Green	Green	Green	Green
Oregon:							
Northern Oregon Cascades	BHS, E, HRS, TS	100	Green	--	Green	Green	Green
Central Oregon Cascades	BHS, E, VRS, TS	110	Green	Green	Green	Green	Green
Southern Oregon Cascades	BHS, E, VRS, TS	90	Dry	Dry	Green	Green	--
Oregon coast	BHS, E, VRS, TS	85	Green	Green	Green	Green	Green
California:							
Northern California coast	BHS, E, VRS, GS, TS	100	Green	--	Green	Green	Green
Northern Sierras	BHS, E, GS, TS	75	Dry	Dry	Green	Green	--
Central Sierras	BHS, E, VRS, TS	150	Dry	Dry	Green	Green	--

1/ BHS - band headsaw, E - edger, VRS - vertical band resaw, HRS - horizontal band resaw, TS - trim saws, GS - gang saw.

mill and the computed rough green surface area of the lumber from each log. The residue volume was obtained by subtracting the lumber and sawdust volumes from the gross cubic log volume. Thus, the residue volume includes a small amount of sawdust associated with the production of slabs, edgings, and trim ends.

The lumber grade yield from the woods-length logs was obtained by combining the lumber recovery from the sections sawn from each woods-length log. The combined lumber and sawdust cubic volumes were subtracted from the gross cubic volume of the woods-length log to obtain residue cubic volume.

An example may clarify these procedures and the grading and scaling practices. In one sample area, a 28-inch, 34-foot log was bucked and hauled to the sawmill log yard. The log was first graded and scaled in the yard, in accordance with west-side Forest Service practice, as a No. 3 Peeler log having a gross scale of 1,240 board feet and a net scale of 1,160 board feet. Next, the surface and end characteristics of the log were carefully recorded. As the log entered the sawmill, it was bucked into a 16-foot (butt) and an 18-foot (top) log. These two logs were immediately scaled, in accordance with the east-side practice as a 33-inch, 16-foot log and a 29-inch, 18-foot log. The 33-inch butt log was a No. 3 Peeler log having a gross scale of 780 board feet and a net scale of 550 board feet. The 29-inch top log was a No. 2 Sawmill log having a gross and net scale of 680 board feet.

The diameter difference between the woods-length scale and sawn-length scale (28 inches v. 29 inches) is a result of differences in scaling rules for determining the scaling diameter. The practice followed for woods-length scale is to drop fractions so that if the diameter of the log was actually 28.7 inches it would be scaled as a 28-inch log. In the sawn-length scale, east-side scaling practices were followed where diameters are rounded and a 28.7-inch log would be scaled as a 29-inch log.

The butt section produced 870 board feet of lumber and the top section, 837 board feet. Thus, the overruns were 58.2 percent for the butt section and 23.1 percent for the top section according to the sawn-length scale. The lumber production of the woods-length log was the total of the two sections, 1,707 board feet, which is an overrun of 47.2 percent.

RESULTS

Total log scale, lumber tally, and cubic volume are summarized by log grade in table 6. These values are shown by scaling diameter in Appendix II. The lumber grade yields are also presented by scaling diameter and log grade in Appendix II. These tables in Appendix II are the basis for subsequent discussion and permit further analysis of results by those who may be interested. The information is an average, weighted by volume, of results obtained in 10 different sawmills. The results are not intended to be representative of specific sawmills.

LUMBER RECOVERY

The 4,974 sawn-length logs produced 2,699,546 board feet of lumber. This lumber volume is summarized by thickness, width, and grade in table 7. Almost 54 percent of the lumber production was in 2-inch Dimension items, while 1-inch Board items, Shop items, and items thicker than 2 inches accounted for 10, 12, and 24 percent of the total, respectively.

Table 6.--Total log scale, lumber tally, and cubic volume by log grade

Log grade	Number of logs	Log scale[1]		Lumber tally		Cubic volume				
		Gross	Net	Volume	Recovery ratio[2]	Log	Lumber	Lumber recovery ratio[3]	Sawdust	Residue
		Board feet			*Percent*	*Cubic feet*		*Percent*	*Cubic feet*	
Sawn-length logs:										
No. 1 Peeler	51	75,800	65,620	71,748	109	10,244.28	6,197.90	60	1,014.91	3,031.67
No. 2 Peeler	111	142,940	126,300	132,698	105	18,829.45	11,535.88	61	1,960.94	5,332.63
No. 3 Peeler	521	514,270	452,330	504,383	112	70,417.26	43,608.66	62	7,760.83	19,047.77
Special Peeler	164	55,420	51,340	59,511	116	8,140.79	5,029.56	62	857.32	2,253.91
No. 2 Sawmill	2,035	1,155,530	1,019,770	1,180,501	116	154,731.59	101,065.25	65	17,364.80	36,301.54
No. 3 Sawmill	2,092	702,200	588,230	750,705	128	100,274.55	63,426.01	63	11,189.34	25,659.20
Total or average	4,974	2,646,160	2,303,590	2,699,546	117	362,638.12	230,863.26	64	40,148.14	91,626.72
Woods-length logs:										
No. 1 Peeler	69	147,560	127,450	150,125	118	21,466.59	12,946.75	60	2,115.32	6,404.52
No. 2 Peeler	86	186,280	160,000	186,359	116	27,184.84	16,156.45	59	2,686.95	8,341.44
No. 3 Peeler	318	490,980	433,140	533,259	123	74,479.21	46,207.34	62	8,257.68	20,014.19
Special Peeler	150	95,000	88,110	117,239	133	15,892.73	9,938.29	63	1,727.11	4,227.33
No. 1 Sawmill	5	10,390	8,160	9,617	118	1,727.73	824.48	48	141.33	761.92
No. 2 Sawmill	1,291	1,084,720	937,080	1,255,734	134	162,905.27	107,096.72	66	18,603.57	37,204.98
No. 3 Sawmill	1,061	347,080	265,930	436,717	164	59,364.25	36,774.78	62	6,548.08	16,041.39
Total or average	2,980	2,362,010	2,019,870	2,689,050	133	363,020.62	229,994.81	63	40,080.04	92,995.77

1/ Woods-length logs: As scaled by Forest Service scaler, west-side log scaling rules, Scribner Decimal C log rule.
Sawn-length logs: As scaled by Bureau of Land Management scaler, east-side log scaling rules, Scribner Decimal C log rule.

2/ Lumber tally volume as percentage of net scale volume.

3/ Lumber cubic volume as percentage of log cubic volume.

Table 7.--Distribution of lumber volume by grade, thickness, and width from sawn-length logs

Thickness	Width	Volume	Grade													
			B & Btr. Select	C Select	D Select	Moulding	Factory Select	No. 1 Shop	No. 2 Shop	No. 3 Shop	Select Structural[1]	Construction	Standard	Utility	Economy	All grades
Inches		*Board feet*	*Percent of total lumber volume*													
1	2,3,4	48,446	0.17	0.53	0.23	--	--	--	--	--	0.01	0.33	0.20	0.20	0.12	1.79
	6	67,424	.18	.58	.35	--	--	--	--	--	.04	.53	.40	.29	.13	2.50
	8	74,384	.11	.47	.34	--	--	--	--	--	.03	.42	.41	.64	.34	2.76
	10	23,333	.12	.33	.26	--	--	--	--	--	(2/)	.05	.04	.04	.02	.86
	12 & wider	58,790	.53	.74	.67	--	--	--	--	--	(2/)	.09	.05	.08	.02	2.18
Total		272,377	1.11	2.65	1.85	--	--	--	--	--	.08	1.42	1.10	1.25	.63	10.09
2	2,3,4	207,183	.49	.86	.46	--	--	--	--	--	.46	1.70	1.16	1.62	.92	7.67
	6	251,822	.85	1.12	.39	--	--	--	--	--	.76	1.98	1.50	1.94	.79	9.33
	8	253,864	.36	.51	.26	--	--	--	--	--	1.13	2.40	1.90	2.16	.68	9.40
	10	150,815	.24	.40	.18	--	--	--	--	--	1.32	1.63	1.04	.62	.16	5.59
	12 & wider	579,212	.91	.73	.29	--	--	--	--	--	3.42	6.97	4.50	3.65	.98	21.45
Total		1,442,896	2.85	3.62	1.58	--	--	--	--	--	7.09	14.68	10.10	9.99	3.53	53.44
3 & 4	4	47,917	.06	.15	.02	--	--	--	--	--	.38	.54	.20	.27	.16	1.78
	6	150,270	.84	.56	.08	--	--	--	--	--	1.12	1.33	.75	.43	.46	5.57
	8	72,330	.37	.25	.03	--	--	--	--	--	.45	.78	.37	.34	.09	2.68
	10	76,840	.46	.17	.02	--	--	--	--	--	.90	.70	.53	.06	.01	2.85
	12 & wider	175,167	1.80	.34	.05	--	--	--	--	--	.82	1.48	.88	.97	.15	6.49
Total		522,524	3.53	1.47	.20	--	--	--	--	--	3.67	4.83	2.73	2.07	.87	19.37
5 & thicker	6	43,584	.11	.07	(2/)	--	--	--	--	--	.46	.66	.27	.03	.01	1.61
	8	24,642	.05	.07	(2/)	--	--	--	--	--	.37	.25	.03	.14	0	.91
	10	11,290	.10	.01	0	--	--	--	--	--	.07	.21	.03	0	0	.42
	12 & wider	50,634	.18	.02	0	--	--	--	--	--	.47	.56	.19	.45	(2/)	1.87
Total		130,150	.44	.17	0	--	--	--	--	--	1.37	1.68	.52	.62	.01	4.81
1 (4/4)	Random	46,710	--	--	--	0.93	0.25	0.30	0.25	(2/)	--	--	--	--	--	1.73
1-1/4 (5/4)	Random	128,574	--	--	--	1.43	.13	.85	1.88	0.47	--	--	--	--	--	4.76
1-1/2 (6/4)	Random	46,420	--	--	--	.44	.15	.44	.58	.11	--	--	--	--	--	1.72
1-5/8	Random	47,659	--	--	--	0	.32	.51	.71	.23	--	--	--	--	--	1.77
2	Random	62,236	--	--	--	.07	.87	.59	.66	.12	--	--	--	--	--	2.31
Total		331,599	--	--	--	2.87	1.72	2.69	4.08	.93	--	--	--	--	--	12.29
Total all items		2,699,546	7.93	7.91	3.63	2.87	1.72	2.69	4.08	.93	12.21	22.61	14.45	13.93	5.04	100.00

1/ 1-inch boards are termed Select Merchantable.

2/ Percentage is less than 0.005.

The 2,980 woods-length logs produced 2,689,050 board feet of lumber. Note that this is slightly less (0.4 percent) than the volume shown for the sawn-length logs. This difference is due to a few more logs being scaled as cull (defect greater than 66-2/3 percent) in the woods-length scale. The thickness, width, and grade distribution of the lumber volume in the woods-length logs is almost identical to that shown for the sawn-length logs. For practical purposes, it is the same as that shown in table 7. The average lumber grade yields obtained for each log grade are shown in table 8.

The influence of log quality and size on lumber yield is shown in figures 4 and 5. The variability that occurs in lumber yield has been smoothed by curving to indicate yield patterns. There was a significant increase in the proportion of Select grade lumber as log size increased. A reverse yield pattern is evident for the Standard and Better lumber. The yield patterns emphasize the need for stratification by log size and grade.

DEFECT

The total gross scale of the sawn-length logs was 2,646,160 board feet and total net scale was 2,303,590 board feet. The average deduction was 13 percent of the gross scale. As would be expected, the smaller logs tended to be less defective and the scaled deduction for defect increased with an increase in diameter. This relationship is shown in figure 6.

Table 8.--Lumber grade yields by log grade

Log grade	Number of logs	Lumber tally volume	Lumber grades												
			B & Btr. Select	C Select	D Select	Moulding	Factory Select	No. 1 Shop	No. 2 Shop	No. 3 Shop	Select Structural	Construction	Standard	Utility	Economy
		Board feet	*Percent of lumber tally volume*												
Sawn-length logs:															
No. 1 Peeler	51	71,748	34.85	19.82	6.02	2.59	3.01	2.63	3.47	0.72	8.88	6.67	3.39	5.61	2.34
No. 2 Peeler	111	132,698	24.90	18.26	4.84	1.82	5.93	4.49	3.74	.93	10.26	10.21	5.60	6.47	2.56
No. 3 Peeler	521	504,383	17.29	14.94	5.55	5.33	2.64	2.51	3.10	.75	14.54	15.04	6.75	8.03	3.54
Special Peeler	164	59,511	2.52	7.28	4.45	2.89	.21	.34	1.34	.45	36.93	23.56	9.63	7.98	2.42
No. 2 Sawmill	2,035	1,180,501	5.26	7.01	3.98	3.01	1.60	3.01	4.19	.88	15.20	26.64	13.49	11.64	4.08
No. 3 Sawmill	2,092	750,705	.69	1.68	1.29	1.19	.55	2.15	4.91	1.19	4.66	25.01	24.14	24.08	8.46
Woods-length logs:															
No. 1 Peeler	69	150,125	36.23	19.32	4.93	3.00	3.41	2.28	2.09	.55	9.87	7.81	3.53	4.96	2.01
No. 2 Peeler	86	186,359	27.46	19.21	4.85	2.64	3.58	3.20	3.68	.60	11.07	9.57	5.00	5.82	3.31
No. 3 Peeler	318	533,259	11.21	12.61	5.97	5.34	2.70	3.35	4.16	.92	14.69	18.17	8.29	8.96	3.63
Special Peeler	150	117,239	2.78	6.99	4.32	2.97	.14	.83	2.03	.52	32.44	28.71	9.45	6.69	2.13
No. 1 Sawmill	5	9,617	18.40	15.13	8.41	.37	8.45	4.08	2.18	.40	15.35	12.42	5.66	5.58	3.57
No. 2 Sawmill	1,291	1,255,734	3.21	5.07	3.05	2.55	1.32	2.88	4.42	.98	12.44	28.01	16.88	14.19	5.02
No. 3 Sawmill	1,061	436,717	.79	1.85	1.25	.87	.63	1.71	4.43	1.15	4.63	22.14	24.35	27.07	9.15

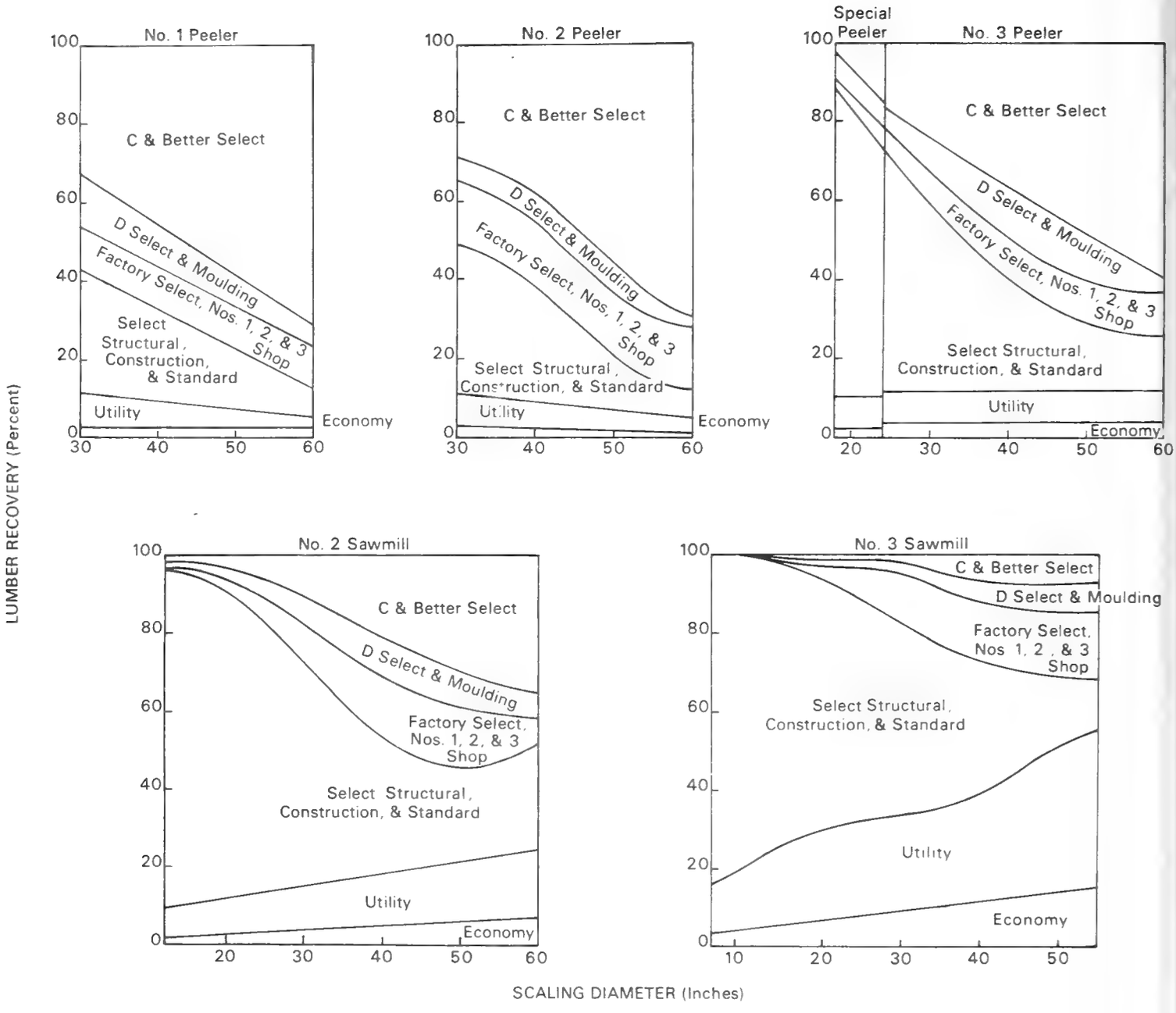

Figure 4.--*Lumber grade recovery by scaling diameter and log grade, sawn-length logs.*

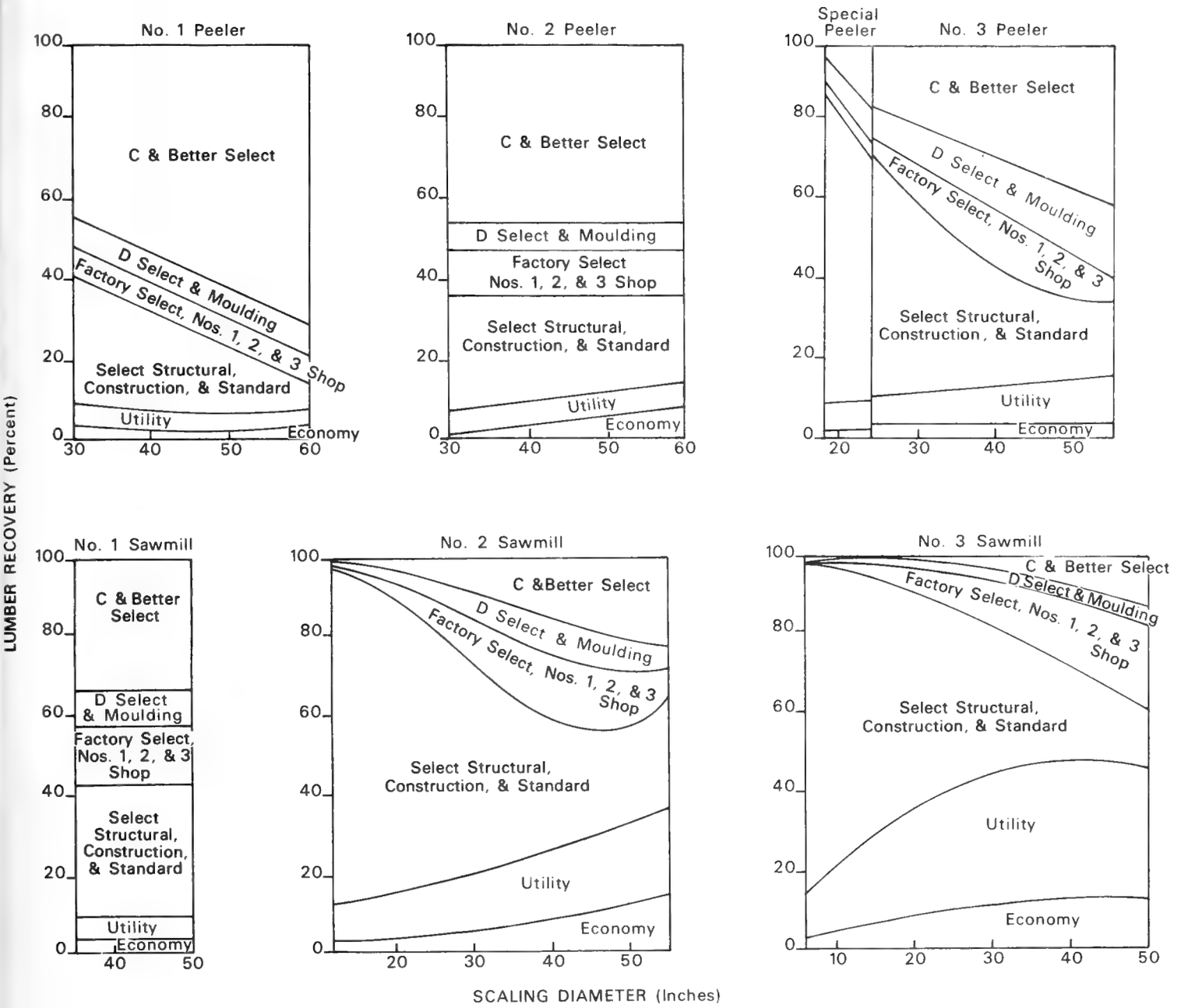

Figure 5.--*Lumber grade recovery by scaling diameter and log grade, woods-length logs.*

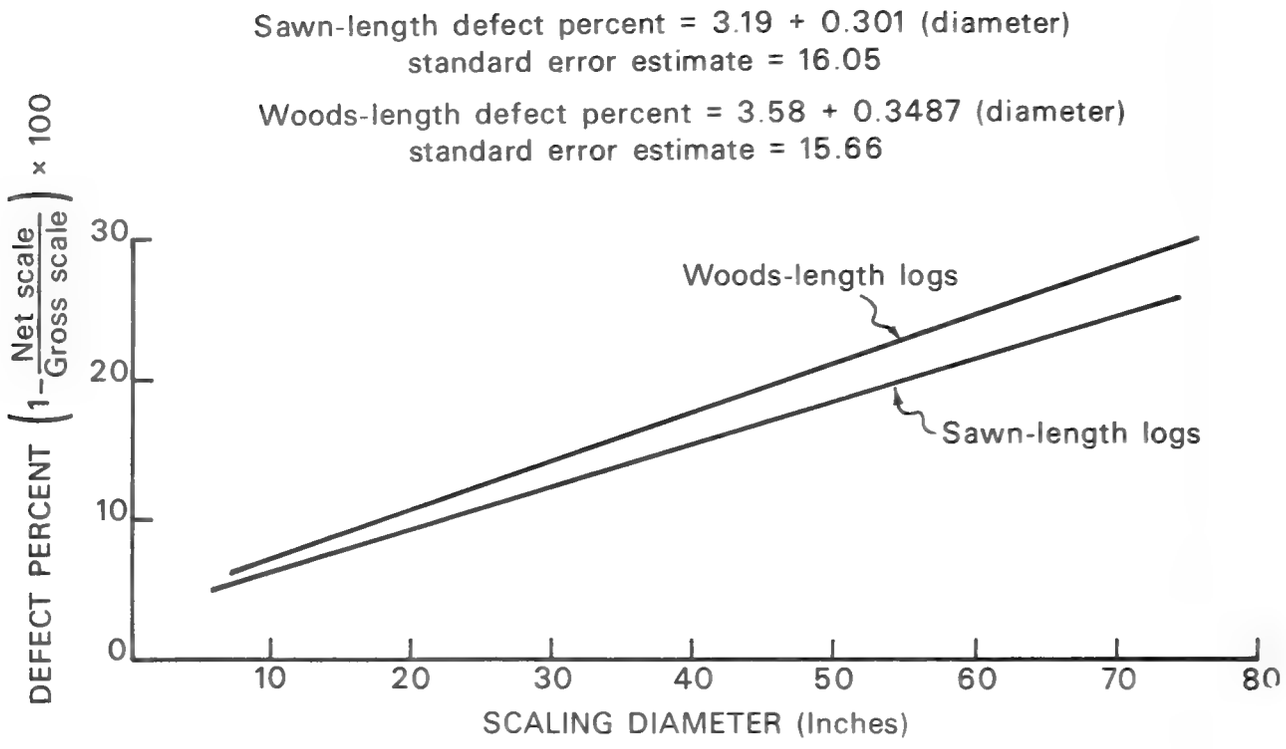

Figure 6.--*Relationship of scale defect to scaling diameter.*

The total gross scale of the woods-length logs was 2,362,010 board feet, and the total net scale was 2,019,870 board feet. The average deduction was 14 percent of the gross scale. The defect deductions of the two scaling systems are almost identical as shown in figure 6. The gross and net scale values for the woods-length logs average about 16 percent lower than those of the sawn-length logs due to the difference in scaling practices.

LUMBER TALLY RATIOS (OVERRUN)

The ratios of lumber tally to net scale (overrun values) are related to log size and defect. The ratios tend to decrease with increasing log diameter. The reader may observe a different trend in recovery ratios for each log grade, but this is due in part to the diameter distribution of the logs in the grades. If the differences due to diameter distribution are considered, the differences in recovery ratios are not too marked. The relationship is shown in figure 7. Due to the different scale basis, the woods-length ratios are consistently higher.

CUBIC RATIOS

The relationship of the lumber cubic volume recovery ratio to scaling diameter is shown in figure 8. This ratio has an opposite trend to that of the lumber tally ratio. The cubic ratio tends to increase as diameter increases. On the average, about 63 to 64 percent of the cubic content of the log was manufactured into rough green lumber. Approximately 25 percent of the rough green lumber volume was lost as planer shavings and shrinkage. Thus, about 49.5 percent of the cubic log content was shipped as lumber.

The relationship of lumber yield per cubic foot of log input to scaling diameter is shown in figure 9. On the average, for each cubic foot of log input, 7.4 board feet of lumber was produced.

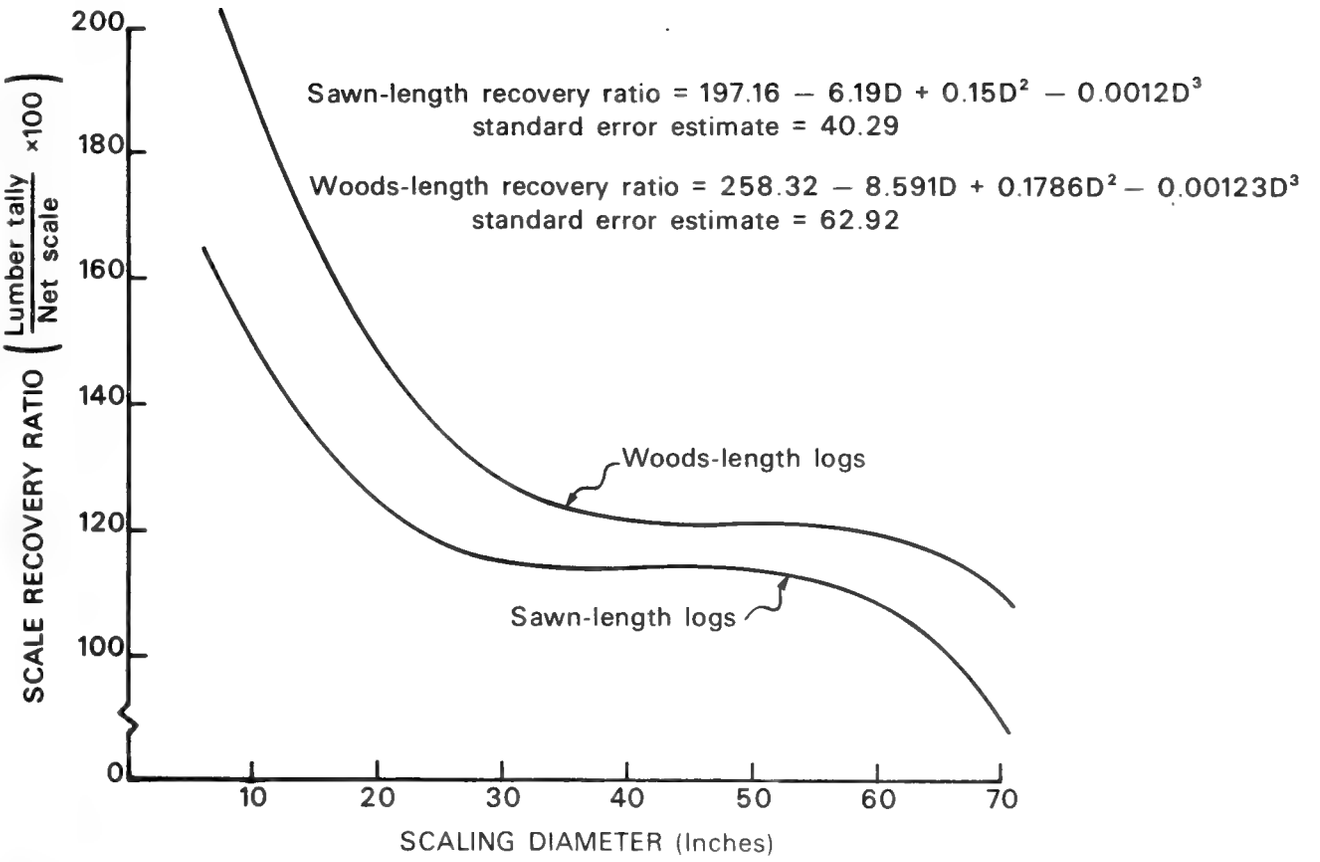

Figure 7.--*Relationship of net log scale-lumber tally recovery ratio to scaling diameter.*

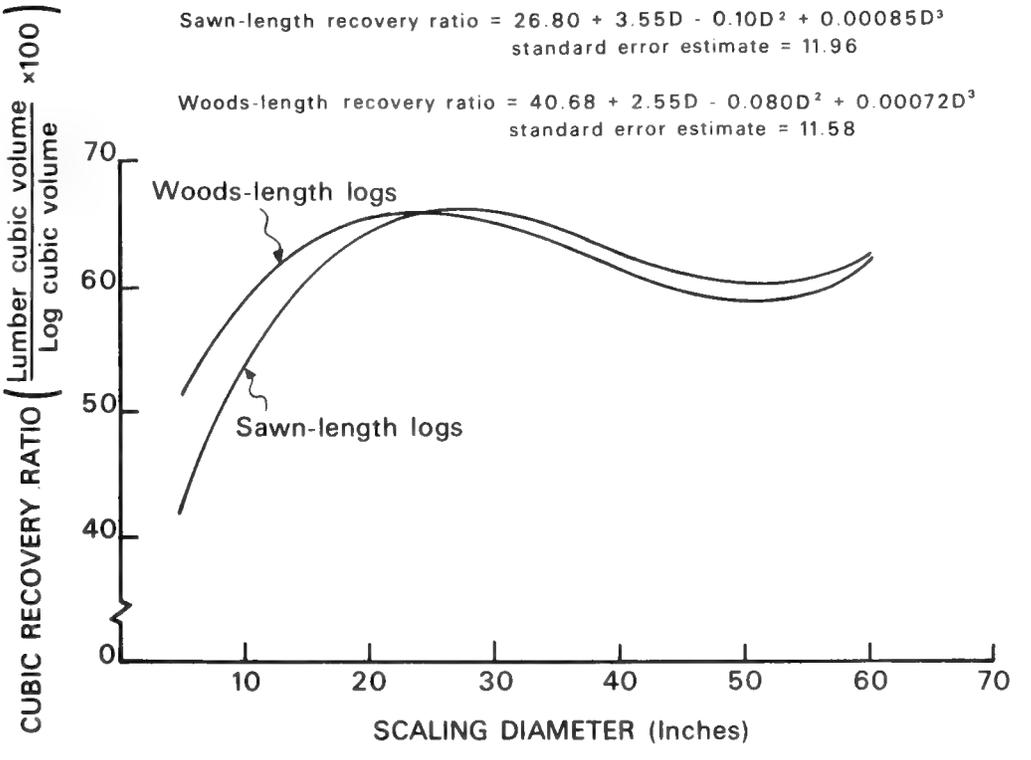

Figure 8.--*Relationship of lumber cubic-volume recovery ratio to scaling diameter.*

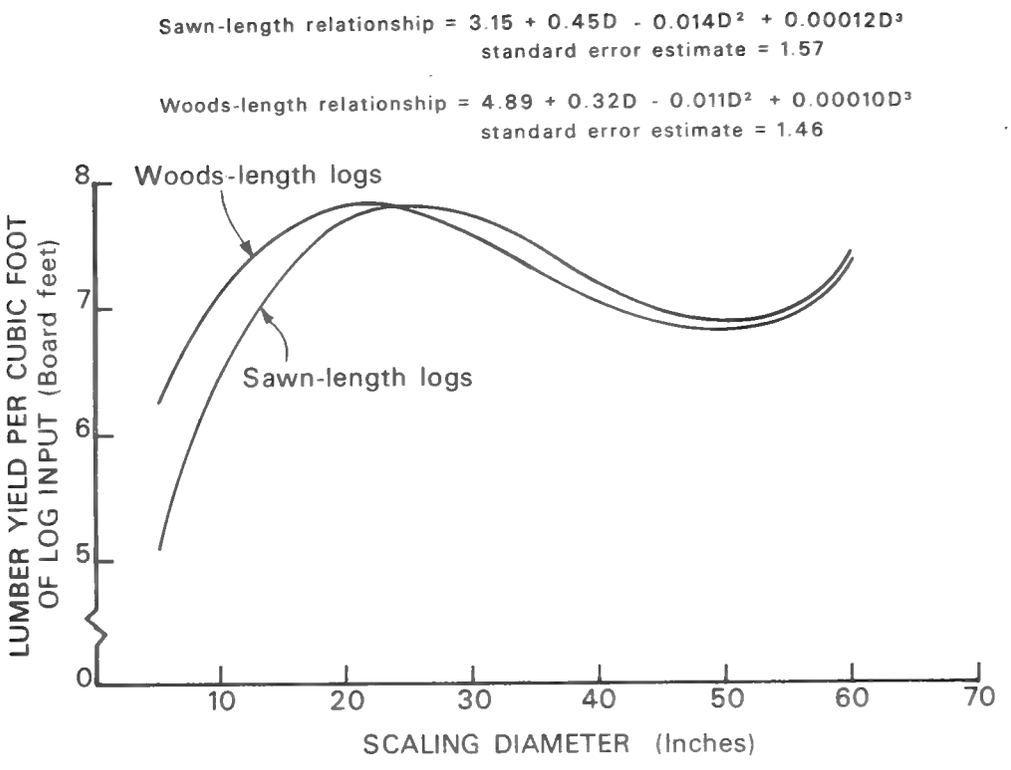

Figure 9.--*Relationship of board-foot yield per cubic foot of log input to scaling diameter.*

ACKNOWLEDGMENTS

The information presented in this paper was obtained and assembled through the cooperation and assistance of a great many people in industry and public agencies. The authors are particularly indebted to the following personnel of the Grade and Quality of Western Softwoods Research Project of the Pacific Northwest Forest and Range Experiment Station: M. Wallace Burck, David Carpenter, and Donald C. Martin.

The following Timber Management personnel of the National Forest System made significant contributions: Harold F. Wise, Norman E. Dole, Jr., Jack Levitan, and Frank Oyung, of the California Region; John E. Todd, James B. Lowrie, and Douglas L. Hunt in the Pacific Northwest Region.

The Bureau of Land Management: George B. Hartman, Portland Service Center, and Howard Kirkpatrick, Eugene District Scaler. The Bureau of Indian Affairs: Kenneth W. Hadley, Area Forester.

The plant management and operating personnel of the cooperating sawmills, including International Paper Company, Chelatchie, Washington; U. S. Plywood Division of Champion International at Mapleton, Oregon, and Anderson, California; Summit View Lumber Company, Darrington, Washington; J. F. Sharp Lumber Company, Yreka, California; Simpson Timber Company, Shelton, Washington; Timber Products Company, Medford, Oregon; Van Vleet Wood Products Company, Hoopa, California; Publishers Paper Company, Portland, Oregon; Bohemia Lumber Company, Inc., Culp Creek, Oregon.

The West Coast Lumber Inspection Bureau, Pacific Lumber Inspection Bureau, and Western Wood Products Association for assistance in grading the study lumber.

APPENDIX I

SUMMARY OF FOREST SERVICE LOG GRADE SYSTEM FOR COAST DOUGLAS-FIR

Douglas-fir Peeler Log Grade Specifications - Summary
(All grades must be suitable for rotary cutting)

	No. 1	*No. 2*	*No. 3*	*Special*[1/]
Production	Clear veneer	Clear veneer	Center & cross core	Same as No. 3
Surface clear requirement	100 percent	75 percent	None	None
Knots	None	None	Limit-size 1-1/2" (two per 8' block) Smaller-five per 8' block	Same as No. 3
Indications (knot)	None	Not over 25 percent of surface	Number-no limit Size-none over 1-1/2"	Same as No. 3
Diameter minimum	30"	30"	24"	18"
Maximum slope of grain[2/]	1" per foot, 30-35" 1-1/2" per foot, 36-50" 2" per foot, 51-60" 2-1/2" per foot, 61"+	3" per foot, all logs	3" per foot, 24-35" 4" per foot, 36" and over	3" per foot, all logs
Grade defects: Firm stain	Limited	Limited	Permitted, no limit	Permitted, no limit
Deductible defects: Pitch rings	Not permitted	Limited	Limited	Limited
Butt rot	Permitted in 32' logs in all grades if one 8' block only is unsuitable for rotary cutting.			
White pocket (conk)	Not permitted	Not permitted	Permitted if not over 50 percent of gross	Same as No. 3
Cat faces, scars-shallow	Permitted	Permitted	Permitted	Permitted
Cat faces, deep (over one-half log length)	Not permitted	Not permitted	Not permitted	Not permitted
Grub wormholes	Up to 10 percent surface	Up to 10 percent surface	Up to 25 percent surface	Up to 25 percent surface
Pin wormholes	Not permitted	Not permitted	Permitted if wood is sound	Permitted if wood is sound
Knot clusters and burls	One permitted per 16' log	One permitted per 16' log	One permitted per 16' log	One permitted per 16' log
Sweep	Limited	Limited	Permitted	Permitted
Crook	Limited	Limited	Limited	Limited
Usual age-years	350+	300+	100+	100+
Usual position in tree	1st 32' log	1st & 2d 32' logs	Old growth: 3d & 4th 32' logs Red fir: 1st & 2d 32' logs 2d gr. 1st 32' log	Red fir: 1st, 2d, & 3d 32' logs 2d gr. 1st 32' log

[1/] Logs meeting this specification are graded No. 2 Sawmill in the California Region.

[2/] Slope of grain not considered in California Region.

Douglas-fir Sawmill Log Grade Specifications - Summary

	No. 1[3]	*No. 2*	*No. 3*
Production	C & Btr. lbr.	1. Constr. or Btr. 2. Shop or Btr.	Standard or Btr.
Surface clear requirement	100 percent	None	None
Knots permitted	None	1. Mostly live Mostly 2-1/2" & less 2. Larger permitted but limited.	No limit
Indications (knot)	None	Number-no limit Size - 2-1/2"	No limit
Diameter limit	30"	12"	6"
Maximum slope of grain[2]	1" per foot, 30-35"	2-1/2" per foot, 12-20"	None
	1-1/2" per foot, 36-50"	3" per foot, 21-35"	
	2" per foot, 51-60"	4" per foot, 36-50"	
	2-1/2" per foot, 61" and over	5" per foot, 51" and over	
Grade defect permitted: Firm stain	Limited	Permitted	Permitted - no limit
Deductible defects: White pocket (conk)	Limited	Permitted	Permitted if not over 66-2/3% of gross
Other	Any permitted provided the free portion meets the lumber production requirement and the log is 33-1/3% sound		
Usual age - years	350+	Any	Any
Usual position in tree	1st 16' log, sometimes 2d	Any	Top log or under 12"

[3] Few logs meet this grade specification; therefore, it is not used by the California Region nor by the Bureau of Land Management.

APPENDIX II

TABLES OF LUMBER RECOVERY DATA BY DIAMETER AND LOG GRADE

FOR SAWN-LENGTH LOGS AND WOODS-LENGTH LOGS

Table 9.--Log scale, lumber tally, and cubic volumes by scaling diameter, No. 1 Peeler grade sawn-length logs

Log scaling diameter (inches)	Number of logs	Log scale[1]		Lumber tally		Cubic volume				
		Gross	Net	Volume	Recovery ratio[2]	Log	Lumber	Lumber recovery ratio[3]	Sawdust	Residue
		Board feet			*Percent*	*Cubic feet*		*Percent*	*Cubic feet*	
30	1	660	550	551	100	104.46	47.47	45	7.69	49.30
31	0	--	--	--	--	--	--	--	--	--
32	3	2,530	2,470	2,701	109	329.71	233.52	71	37.44	58.75
33	2	2,230	1,800	2,110	117	310.03	181.84	59	32.56	95.63
34	1	800	800	928	116	103.88	78.22	75	11.36	14.30
35	4	3,730	3,160	3,475	110	554.01	300.18	54	51.51	202.32
36	2	1,840	1,800	1,956	109	270.20	165.60	61	26.13	78.47
37	2	2,190	1,780	1,965	110	300.26	170.98	57	26.93	102.35
38	3	3,070	2,400	2,891	120	394.11	247.95	63	39.22	106.94
39	1	1,120	920	1,096	119	139.66	94.50	68	17.10	28.06
40	1	1,200	660	1,261	191	146.72	109.19	74	19.67	17.86
41	4	5,240	4,280	4,731	111	781.87	409.16	52	66.32	306.39
42	3	4,190	3,520	3,741	106	500.10	327.49	65	56.39	116.22
43	3	4,370	3,800	3,413	90	555.40	294.96	53	53.10	207.34
44	3	4,440	3,410	4,593	135	640.01	395.06	62	59.78	185.17
45	0	--	--	--	--	--	--	--	--	--
46	3	5,150	4,890	5,094	104	710.18	437.44	62	63.02	209.72
47	2	3,320	2,950	3,050	103	442.50	263.62	60	48.72	130.16
48	2	3,670	3,250	3,257	100	485.15	289.32	60	57.74	137.59
49	3	5,170	4,770	5,015	105	650.60	428.04	66	68.42	154.14
50	1	2,110	1,860	1,989	107	276.07	174.45	63	28.87	72.75
51	0	--	--	--	--	--	--	--	--	--
52	3	6,320	5,570	6,052	109	815.05	527.09	65	95.83	192.13
53	0	--	--	--	--	--	--	--	--	--
54	1	2,180	2,100	1,850	88	294.03	170.25	58	34.80	88.98
55	1	3,460	3,220	3,855	120	480.45	331.78	69	40.24	108.43
56	0	--	--	--	--	--	--	--	--	--
57	1	2,440	2,180	2,648	121	336.18	226.17	67	31.57	78.44
58	0	--	--	--	--	--	--	--	--	--
59	0	--	--	--	--	--	--	--	--	--
60	0	--	--	--	--	--	--	--	--	--
61	0	--	--	--	--	--	--	--	--	--
62	0	--	--	--	--	--	--	--	--	--
63	0	--	--	--	--	--	--	--	--	--
64	0	--	--	--	--	--	--	--	--	--
65	0	--	--	--	--	--	--	--	--	--
66	0	--	--	--	--	--	--	--	--	--
67	0	--	--	--	--	--	--	--	--	--
68	1	4,370	3,480	3,526	101	623.85	293.12	47	40.50	290.23
Total or average	51	75,800	65,620	71,748	109	10,244.48	6,197.90	60	1,014.91	3,031.67

[1] As scaled by Bureau of Land Management scaler, east-side log scaling rules, Scribner Decimal C log rule.

[2] Lumber tally volume as percentage of net scale volume.

[3] Lumber cubic volume as percentage of log cubic volume.

Table 10.--Log scale, lumber tally, and cubic volumes by scaling diameter, No. 2 Peeler grade sawn-length logs

Log scaling diameter (inches)	Number of logs	Log scale[1]		Lumber tally		Cubic volume				
		Gross	Net	Volume	Recovery ratio[2]	Log	Lumber	Lumber recovery ratio[3]	Sawdust	Residue
		Board feet			*Percent*	*Cubic feet*		*Percent*	*Cubic feet*	
30	6	4,400	3,960	4,065	103	558.55	352.87	63	59.48	146.20
31	5	4,650	3,830	4,454	116	625.65	386.31	62	64.17	175.17
32	10	7,750	6,600	6,215	94	1,056.89	536.87	51	91.85	428.17
33	3	2,720	2,210	2,458	111	397.11	210.84	53	36.93	149.34
34	7	5,400	4,940	4,824	98	749.79	418.35	56	72.40	259.04
35	8	7,600	6,500	7,375	113	1,013.42	639.15	63	118.30	255.97
36	3	2,990	2,570	3,054	119	426.32	259.78	61	40.28	126.26
37	10	11,610	10,640	10,895	102	1,431.51	947.84	66	165.87	317.80
38	6	7,540	6,580	7,138	108	1,013.29	612.49	60	109.91	290.89
39	8	9,380	8,160	9,426	116	1,307.41	817.24	63	139.10	351.07
40	5	6,300	5,200	5,696	110	769.64	499.02	65	96.06	174.56
41	5	6,980	6,200	6,646	107	900.76	584.67	65	94.96	221.13
42	2	2,850	2,130	2,816	132	365.03	239.83	66	40.21	84.99
43	7	10,210	9,390	10,084	107	1,285.08	870.23	68	138.23	276.62
44	4	6,650	5,720	5,429	95	848.44	494.19	58	94.16	260.09
45	5	7,980	7,130	8,179	115	1,152.17	712.43	62	132.68	307.06
46	3	4,370	4,180	4,356	104	538.58	378.96	70	68.19	91.43
47	3	5,180	4,750	4,958	104	659.36	423.60	64	62.17	173.59
48	0	--	--	--	--	--	--	--	--	--
49	1	2,750	2,520	2,632	104	390.12	227.22	58	35.72	127.18
50	1	1,640	1,640	1,411	86	206.57	130.72	63	30.86	44.99
51	1	2,190	2,110	1,916	91	270.67	170.32	63	28.21	72.14
52	0	--	--	--	--	--	--	--	--	--
53	1	2,370	1,800	1,879	104	336.97	163.35	48	24.47	149.15
54	2	3,820	3,340	3,062	92	453.62	268.04	59	42.11	143.47
55	2	6,420	5,940	5,618	95	845.17	487.11	58	68.72	289.34
56	0	--	--	--	--	--	--	--	--	--
57	1	2,130	1,840	1,797	98	256.89	155.12	60	21.80	79.97
58	0	--	--	--	--	--	--	--	--	--
59	0	--	--	--	--	--	--	--	--	--
60	0	--	--	--	--	--	--	--	--	--
61	0	--	--	--	--	--	--	--	--	--
62	0	--	--	--	--	--	--	--	--	--
63	0	--	--	--	--	--	--	--	--	--
64	1	3,870	3,620	3,643	101	535.82	320.78	60	52.77	162.27
65	1	3,190	2,800	2,672	95	434.62	228.55	53	31.33	174.74
Total or average	111	142,940	126,300	132,698	105	18,829.45	11,535.88	61	1,960.94	5,332.63

[1] As scaled by Bureau of Land Management scales, east-side log scaling rules, Scribner Decimal C log rule.

[2] Lumber tally volume as percentage of net scale volume.

[3] Lumber cubic volume as percentage of log cubic volume.

Table 11.--Log scale, lumber tally, and cubic volumes by scaling diameter, No. 3 Peeler grade sawn-length logs

Log scaling diameter (inches)	Number of logs	Log scale[1]		Lumber tally		Cubic volume				
		Gross	Net	Volume	Recovery ratio[2]	Log	Lumber	Lumber recovery ratio[3]	Sawdust	Residue
		Board feet			*Percent*	*Cubic feet*		*Percent*	*Cubic feet*	
24	34	17,050	15,800	18,119	115	2,470.30	1,540.31	62	290.81	639.18
25	27	14,350	12,790	14,335	112	2,053.94	1,208.49	59	215.85	629.60
26	40	21,730	19,840	22,066	111	2,983.36	1,880.58	63	319.19	783.59
27	33	21,930	20,220	21,839	108	2,970.14	1,860.69	63	324.35	785.10
28	38	24,600	22,480	24,420	109	3,410.31	2,091.57	61	367.07	951.67
29	30	19,850	17,920	21,084	118	2,828.84	1,808.12	64	334.10	686.62
30	22	16,080	14,460	16,320	113	2,269.82	1,411.49	62	242.53	615.80
31	22	17,590	15,900	17,621	111	2,375.22	1,517.31	64	258.23	599.68
32	18	14,100	13,150	14,231	108	1,903.33	1,218.29	64	208.48	476.56
33	33	27,740	24,620	27,655	112	3,898.57	2,382.23	61	424.28	1,092.06
34	16	16,490	14,590	16,324	112	2,337.00	1,419.84	61	248.86	668.30
35	28	27,320	24,320	27,640	114	3,902.36	2,396.35	61	428.50	1,077.51
36	19	19,440	16,860	17,976	107	2,562.38	1,576.48	62	284.29	701.61
37	17	18,740	16,110	18,191	113	2,553.11	1,576.80	62	286.25	690.06
38	19	23,790	19,300	22,847	118	3,446.09	1,955.62	57	345.30	1,145.17
39	13	17,310	15,740	17,686	112	2,425.44	1,550.66	64	301.87	572.91
40	19	26,460	22,540	25,818	115	3,457.22	2,259.69	65	441.05	756.48
41	9	12,550	10,190	10,568	104	1,696.43	928.66	55	169.95	597.82
42	12	16,690	15,210	16,212	107	2,157.43	1,413.41	66	252.16	491.86
43	12	20,710	17,550	19,079	109	2,754.16	1,659.35	60	294.65	800.16
44	8	12,750	11,190	12,182	109	1,665.32	1,042.91	63	199.80	422.61
45	6	11,460	10,250	11,818	115	1,442.93	1,021.91	71	179.76	241.26
46	5	7,940	6,560	7,058	108	1,051.36	634.16	60	132.16	285.04
47	6	10,570	9,070	10,880	120	1,501.04	979.98	65	193.42	327.64
48	10	20,830	18,310	19,706	108	2,834.25	1,725.00	61	297.29	811.96
49	5	10,840	9,490	11,330	119	1,500.35	983.06	66	136.28	381.01
50	4	7,020	6,210	6,042	97	892.00	533.57	60	95.06	263.37
51	3	6,570	6,130	7,368	120	882.25	621.61	70	84.82	175.82
52	4	7,580	5,520	5,669	103	983.38	501.52	51	94.05	387.81
53	2	4,200	2,690	3,550	132	629.94	311.89	50	59.95	258.10
54	2	5,190	4,810	5,608	117	724.12	475.12	66	66.44	182.56
55	1	2,550	2,190	2,177	99	302.41	184.20	61	28.69	89.52
56	1	2,500	1,840	1,836	100	328.63	153.17	47	24.75	150.71
57	0	--	--	--	--	--	--	--	--	--
58	0	--	--	--	--	--	--	--	--	--
59	2	5,880	5,210	5,526	106	748.52	483.56	65	87.54	177.42
60	0	--	--	--	--	--	--	--	--	--
61	0	--	--	--	--	--	--	--	--	--
62	0	--	--	--	--	--	--	--	--	--
63	0	--	--	--	--	--	--	--	--	--
64	1	3,870	3,270	3,602	110	475.31	301.06	63	43.05	131.20
Total or average	521	514,270	452,330	504,383	112	70,417.26	43,608.66	62	7,760.83	19,047.77

[1] As scaled by Bureau of Land Management scaler, east-side log scaling rules, Scribner Decimal C log rule.

[2] Lumber tally volume as percentage of net scale volume.

[3] Lumber cubic volume as percentage of log cubic volume.

Table 12.--Log scale, lumber tally, and cubic volumes by scaling diameter, Special Peeler grade sawn-length logs

Log scaling diameter (inches)	Number of logs	Log scale[1]		Lumber tally		Cubic volume				
		Gross	Net	Volume	Recovery ratio[2]	Log	Lumber	Lumber recovery ratio[3]	Sawdust	Residue
		Board feet			*Percent*	*Cubic feet*		*Percent*	*Cubic feet*	
18	21	4,830	4,490	5,333	119	798.90	446.01	56	75.81	277.08
19	26	6,870	6,290	7,324	116	1,086.16	615.49	57	101.00	369.67
20	25	8,050	7,510	8,329	111	1,164.83	713.06	61	120.19	331.58
21	30	10,380	9,810	11,244	115	1,480.74	953.09	64	160.56	367.09
22	24	9,740	9,010	10,768	120	1,403.59	912.76	65	166.32	324.51
23	38	15,550	14,230	16,513	116	2,206.57	1,389.15	63	233.44	583.98
Total or average	164	55,420	51,340	59,511	116	8,140.79	5,029.56	62	857.32	2,253.91

[1] As scaled by Bureau of Land Management scaler, east-side log scaling rules, Scribner Decimal C log rule.

[2] Lumber tally volume as percentage of net scale volume.

[3] Lumber cubic volume as percentage of log cubic volume.

Table 13.--Log scale, lumber tally, and cubic volumes by scaling diameter, No. 2 Sawmill grade sawn-length logs

Log scaling diameter (inches)	Number of logs	Log scale[1]		Lumber tally		Cubic volume				
		Gross	Net	Volume	Recovery ratio[2]	Log	Lumber	Lumber recovery ratio[3]	Sawdust	Residue
		Board feet			*Percent*	*Cubic feet*		*Percent*	*Cubic feet*	
12	106	9,140	8,820	11,889	135	1,667.29	990.82	59	179.02	497.45
13	102	10,970	10,530	13,882	132	1,936.86	1,148.56	59	199.52	588.78
14	109	13,840	13,190	18,053	137	2,411.12	2,411.12	62	261.59	658.76
15	82	13,230	12,440	15,338	123	2,113.07	1,271.07	60	216.01	625.99
16	100	18,680	17,740	22,884	129	2,917.14	1,902.83	65	321.61	692.70
17	87	18,350	17,500	21,784	124	2,851.39	1,818.34	64	297.75	735.30
18	83	20,440	19,550	24,453	125	2,999.22	2,035.11	68	342.35	621.76
19	70	18,760	17,570	21,758	124	2,710.67	1,820.80	67	301.02	588.85
20	86	28,040	26,380	31,040	118	3,892.44	2,603.39	67	432.16	856.89
21	73	26,260	24,610	28,905	117	3,690.18	2,448.33	66	400.95	840.90
22	74	27,920	25,690	30,642	119	3,915.83	2,581.84	66	406.06	927.93
23	77	34,480	31,340	36,835	118	4,617.90	3,115.23	67	527.50	975.17
24	69	32,270	30,560	35,600	116	4,444.34	3,014.79	68	500.22	929.33
25	76	41,360	38,380	42,749	111	5,443.89	3,639.44	67	594.03	1,210.42
26	65	38,840	34,840	39,787	114	5,055.13	3,370.99	67	584.34	1,099.80
27	58	36,890	34,090	36,555	107	4,677.57	3,137.50	67	528.26	1,011.81
28	66	43,260	39,790	43,506	109	5,588.79	3,707.86	66	625.50	1,255.43
29	65	46,430	41,870	47,755	114	6,065.77	4,102.00	68	667.38	1,296.39
30	51	38,870	35,170	39,938	114	5,102.04	3,429.63	67	634.78	1,037.63
31	60	51,020	43,690	49,758	114	6,623.80	4,302.67	65	736.13	1,585.00
32	54	46,600	41,170	47,764	116	6,204.95	4,099.25	66	672.49	1,433.21
33	53	47,180	40,790	47,999	118	6,276.70	4,131.36	66	735.40	1,409.94
34	54	51,210	45,910	53,063	116	6,985.91	4,581.61	66	785.77	1,618.53
35	40	40,820	35,930	41,990	117	5,513.25	3,623.99	66	665.94	1,223.32
36	38	38,970	34,050	38,117	112	5,119.99	3,305.52	65	570.39	1,244.08
37	39	45,720	38,860	45,194	116	5,857.97	3,907.80	67	693.57	1,256.60
38	30	35,420	28,270	35,650	126	4,566.47	3,088.55	68	550.21	927.71
39	26	35,780	30,410	34,279	113	4,670.90	2,976.02	64	542.66	1,152.22
40	22	30,380	24,760	30,771	124	3,838.30	2,646.67	69	437.77	753.86
41	20	32,520	27,740	31,777	115	4,278.48	2,747.60	64	482.91	1,047.97
42	16	25,410	19,410	22,369	115	3,152.78	1,958.25	62	356.98	837.55
43	11	17,360	15,470	15,191	98	2,107.71	1,334.57	63	243.73	529.41
44	12	19,140	16,460	17,022	103	2,396.47	1,516.42	63	284.35	595.70
45	17	29,910	24,090	26,781	111	3,892.23	2,318.74	60	385.72	1,187.77
46	7	11,620	10,350	10,062	97	1,433.88	884.59	62	175.14	374.15
47	8	14,760	12,820	13,783	108	1,845.83	1,202.90	65	224.02	418.91
48	8	15,740	13,450	14,514	108	1,954.99	1,252.65	64	182.74	519.60
49	4	8,090	6,970	6,978	100	980.90	621.09	63	115.91	243.90
50	5	10,070	8,600	9,494	110	1,245.12	834.15	67	154.75	256.22
51	3	6,330	4,200	5,763	137	811.04	497.27	61	103.70	210.07
52	1	2,020	1,800	1,910	106	249.84	165.58	66	23.77	60.49
53	1	2,630	1,870	2,587	138	342.41	222.23	65	50.57	69.61
54	2	4,640	2,730	2,616	96	565.88	224.87	40	34.46	306.55
55	0	--	--	--	--	--	--	--	--	--
56	2	4,120	2,940	2,827	96	509.49	243.19	48	40.94	225.36
57	0	--	--	--	--	--	--	--	--	--
58	1	3,150	1,760	2,179	124	373.32	185.25	50	21.29	166.78
59	1	3,270	2,270	3,224	142	399.35	271.29	68	35.03	93.03
60	0	--	--	--	--	--	--	--	--	--
61	0	--	--	--	--	--	--	--	--	--
62	1	3,620	2,940	3,486	119	432.99	291.87	67	38.41	102.71
Total or average	2,035	1,155,530	1,019,770	1,180,501	116	154,731.59	101,065.25	65	17,364.80	36,301.54

[1] As scaled by Bureau of Land Management scaler, east-side log scaling rules, Scribner Decimal C log rule.

[2] Lumber tally volume as percentage of net scale volume.

[3] Lumber cubic volume as percentage of log cubic volume.

Table 14.--Log scale, lumber tally, and cubic volumes by scaling diameter, No. 3 Sawmill grade sawn-length logs

Log scaling diameter (inches)	Number of logs	Log scale[1]		Lumber tally		Cubic volume				
		Gross	Net	Volume	Recovery ratio[2]	Log	Lumber	Lumber recovery ratio[3]	Sawdust	Residue
		Board feet			*Percent*	*Cubic feet*		*Percent*	*Cubic feet*	
6	48	1,100	1,000	1,605	160	325.42	135.25	42	25.98	164.19
7	35	1,060	1,010	1,406	139	253.82	117.94	46	23.32	112.56
8	105	3,170	3,080	5,231	170	914.96	433.33	47	81.68	399.95
9	123	5,470	5,220	8,119	156	1,339.07	674.12	50	127.35	537.60
10	144	8,440	8,000	11,262	141	1,745.80	931.74	53	174.22	639.84
11	152	11,190	10,440	15,160	145	2,289.61	1,260.67	55	234.29	794.65
12	62	5,410	4,810	7,459	155	1,132.75	615.01	54	112.09	405.65
13	69	7,670	6,880	10,320	150	1,460.35	856.62	59	152.22	451.51
14	73	8,990	7,670	11,769	153	1,707.10	970.31	57	176.15	560.64
15	85	12,700	11,270	15,541	138	2,133.47	1,288.22	60	221.72	623.53
16	94	16,560	14,860	21,403	144	2,791.37	1,755.73	63	311.49	724.15
17	74	15,530	13,360	18,865	141	2,587.65	1,582.36	61	264.07	741.22
18	90	21,650	18,800	24,633	131	3,329.72	2,040.94	61	343.23	945.55
19	80	22,370	19,120	25,357	133	3,395.10	2,094.54	62	350.08	950.48
20	95	30,000	25,160	32,980	131	4,320.01	2,752.43	64	473.61	1,093.97
21	66	22,840	19,940	25,331	127	3,275.53	2,097.57	64	374.00	803.96
22	76	28,720	25,300	31,833	126	4,139.80	2,646.78	64	478.41	1,014.61
23	59	25,810	21,880	27,541	126	3,553.64	2,327.30	65	411.87	814.47
24	57	26,020	23,030	28,599	124	3,625.43	2,418.12	67	401.60	805.71
25	64	32,890	28,110	34,461	123	4,375.90	2,914.38	67	482.07	979.45
26	56	31,500	26,590	32,659	123	4,174.38	2,752.04	66	486.17	936.17
27	55	33,930	28,440	34,522	121	4,340.51	2,940.52	68	515.48	884.51
28	38	26,090	22,130	26,311	119	3,386.84	2,228.10	66	392.27	766.47
29	42	28,410	25,320	30,948	122	3,770.99	2,642.58	70	487.64	640.77
30	31	22,490	19,320	22,586	117	2,973.34	1,917.44	64	348.73	707.17
31	32	27,840	23,170	27,147	117	3,640.23	2,335.99	64	382.66	921.58
32	36	29,900	25,190	31,049	123	3,985.24	2,668.28	67	503.86	813.10
33	20	18,500	15,820	18,245	115	2,446.78	1,576.34	64	278.08	592.36
34	22	20,030	17,250	20,797	121	2,735.09	1,787.07	65	318.22	629.80
35	16	15,890	13,470	17,206	128	2,092.05	1,450.27	69	249.85	391.93
36	19	21,250	17,570	21,969	125	2,830.53	1,880.61	66	324.55	625.37
37	9	12,440	10,380	12,805	123	1,536.32	1,104.43	72	191.20	240.69
38	9	10,790	9,680	9,692	100	1,337.06	841.92	63	163.04	332.10
39	12	19,460	15,520	19,049	123	2,548.41	1,629.84	64	303.35	615.22
40	8	10,800	8,400	9,098	108	1,341.58	784.06	58	125.41	432.11
41	6	9,600	7,480	9,031	121	1,199.87	784.96	65	162.06	252.85
42	4	5,540	3,720	4,575	123	743.91	391.26	53	71.71	280.94
43	4	6,750	3,830	6,249	163	815.41	535.97	66	67.31	212.13
44	1	1,110	740	922	125	129.61	83.42	64	19.72	26.47
45	8	14,320	8,660	12,836	148	1,865.55	1,119.21	60	193.93	552.41
46	2	3,370	2,430	3,135	129	415.03	255.05	61	46.88	113.10
47	3	6,540	3,230	4,979	154	895.59	418.37	47	87.97	389.25
48	0	--	--	--	--	--	--	--	--	--
49	0	--	--	--	--	--	--	--	--	--
50	3	5,610	3,210	4,450	139	722.53	387.87	54	72.22	262.44
51	1	2,430	1,940	2,040	105	324.45	171.06	53	21.56	131.83
52	1	2,530	1,640	2,402	146	318.23	207.56	65	41.10	69.57
53	1	2,370	1,220	2,363	194	302.61	201.10	66	22.42	79.09
54	1	2,180	1,170	1,600	137	264.01	145.74	55	35.14	83.13
55	0	--	--	--	--	--	--	--	--	--
56	1	2,940	1,770	3,165	179	441.90	271.59	61	57.36	112.95
Total or average	2,092	702,200	588,230	750,705	128	100,274.55	63,426.01	63	11,189.34	25,659.20

[1] As scaled by Bureau of Land Management scaler, east-side log scaling rules, Scribner Decimal C log rule.

[2] Lumber tally volume as percentage of net scale volume.

[3] Lumber cubic volume as percentage of log cubic volume.

Table 15.--Log scale, lumber tally, and cubic volumes by scaling diameters, all grades of sawn-length logs

Log scaling diameter (inches)	Number of logs	Log scale[1]		Lumber tally		Cubic volume				
		Gross	Net	Volume	Recovery ratio[2]	Log	Lumber	Lumber recovery ratio[3]	Sawdust	Residue
		Board feet			Percent	Cubic feet		Percent	Cubic feet	
6	48	1,100	1,000	1,605	160	325.42	135.25	42	25.98	164.19
7	35	1,060	1,010	1,406	139	253.82	117.94	46	23.32	112.56
8	105	3,170	3,080	5,231	170	914.96	433.33	47	81.68	399.95
9	123	5,470	5,220	8,119	156	1,339.07	674.12	50	127.35	537.60
10	144	8,440	8,000	11,262	141	1,745.80	931.74	53	174.22	639.84
11	152	11,190	10,440	15,160	145	2,289.61	1,260.67	55	234.29	794.65
12	168	14,550	13,630	19,348	142	2,800.04	1,605.83	57	291.11	903.10
13	171	18,640	17,410	24,202	139	3,397.21	2,005.18	59	351.74	1,040.29
14	182	22,830	20,860	29,822	143	4,118.22	2,461.08	60	437.74	1,219.40
15	167	25,930	23,710	30,879	130	4,246.54	2,559.29	60	437.73	1,249.52
16	194	35,240	32,600	44,287	136	5,708.51	3,658.56	64	633.10	1,416.85
17	161	33,880	30,860	40,649	132	5,439.04	3,400.70	63	561.82	1,476.52
18	194	46,920	42,840	54,419	127	7,127.84	4,522.06	63	761.39	1,844.39
19	176	48,000	42,980	54,439	127	7,191.93	4,530.83	63	752.10	1,909.00
20	206	66,090	59,050	72,349	123	9,377.28	6,068.88	65	1,025.96	2,282.44
21	169	59,480	54,360	65,480	120	8,446.45	5,498.99	65	935.51	2,011.95
22	174	66,380	6,000	73,243	122	9,459.22	6,141.38	65	1,050.79	2,267.05
23	174	75,840	67,450	80,889	120	10,378.11	6,831.68	66	1,172.81	2,373.62
24	160	75,340	69,390	82,318	119	10,540.07	6,973.22	66	1,192.63	2,374.22
25	167	88,600	79,280	91,545	115	11,873.73	7,762.31	65	1,291.95	2,819.47
26	161	92,070	81,270	94,512	116	12,212.87	8,003.61	66	1,389.70	2,819.56
27	146	92,750	82,750	92,916	112	11,988.22	7,938.71	66	1,368.09	2,681.42
28	142	93,950	84,400	94,237	112	12,385.94	8,027.53	65	1,384.84	2,973.57
29	137	94,690	85,110	99,787	117	12,665.60	8,552.70	68	1,489.12	2,623.78
30	111	82,500	73,460	83,460	114	11,008.21	7,158.90	65	1,293.21	2,556.10
31	119	101,100	86,590	98,980	114	13,264.90	8,542.28	64	1,441.19	3,281.43
32	121	100,880	88,580	101,960	115	13,480.12	8,756.21	65	1,514.12	3,209.79
33	111	98,370	85,240	98,467	116	13,329.19	8,482.61	64	1,507.25	3,339.33
34	100	93,930	83,490	95,936	115	12,911.67	8,285.09	64	1,436.61	3,189.97
35	96	95,360	83,380	97,686	117	13,075.09	8,409.94	64	1,514.10	3,151.05
36	81	84,490	72,850	83,072	114	11,209.42	7,187.99	64	1,245.64	2,775.79
37	77	90,700	77,770	89,050	115	11,679.17	7,707.85	66	1,363.82	2,607.50
38	67	80,610	66,230	78,218	118	10,757.02	6,746.53	63	1,207.68	2,802.81
39	60	83,050	70,750	81,536	115	11,091.82	7,068.26	64	1,304.08	2,719.48
40	55	75,140	61,560	72,644	118	9,553.46	6,298.63	66	1,119.96	2,134.87
41	44	66,890	55,890	62,753	112	8,857.41	5,455.05	62	976.20	2,426.16
42	37	54,680	43,990	49,713	113	6,919.25	4,330.24	63	777.45	1,811.56
43	37	59,400	50,040	54,016	108	7,517.76	4,695.08	62	797.02	2,025.66
44	28	44,090	37,520	40,148	107	5,679.85	3,532.00	62	657.81	1,490.04
45	36	63,670	50,130	59,614	119	8,352.88	5,172.29	62	892.09	2,288.50
46	20	32,450	28,410	29,705	105	4,149.03	2,590.20	62	485.39	1,073.44
47	22	40,370	32,820	37,650	115	5,344.32	3,288.47	62	616.30	1,439.55
48	20	40,240	35,010	37,477	107	5,274.39	3,267.47	62	537.77	1,469.15
49	13	26,850	23,750	25,955	109	3,521.97	2,259.41	64	356.33	906.23
50	14	26,450	21,520	23,386	109	3,342.29	2,060.76	62	381.76	899.77
51	8	17,520	14,380	17,087	119	2,288.41	1,460.26	64	238.29	589.86
52	9	18,450	14,530	16,033	110	2,366.50	1,401.75	59	254.75	710.00
53	5	11,570	7,580	10,379	137	1,611.93	898.57	56	157.41	555.95
54	8	18,010	14,150	14,736	104	2,301.66	1,284.02	56	212.95	804.69
55	4	12,430	11,350	11,650	103	1,628.03	1,003.09	62	137.65	487.29
56	4	9,560	6,550	7,828	120	1,280.02	667.95	52	123.05	489.02
57	2	4,570	4,020	4,445	111	593.07	381.29	64	53.37	158.41
58	1	3,150	1,760	2,179	124	373.32	185.25	50	21.29	166.78
59	3	9,150	7,480	8,750	117	1,147.87	754.85	66	122.57	270.45
60	0	--	--	--	--	--	--	--	--	--
61	0	--	--	--	--	--	--	--	--	--
62	1	3,620	2,940	3,486	119	432.99	291.87	67	38.41	102.71
63	0	--	--	--	--	--	--	--	--	--
64	2	7,740	6,890	7,245	105	1,011.13	621.84	61	95.82	293.47
65	1	3,190	2,800	2,672	95	434.62	228.55	53	31.33	174.74
66	0	--	--	--	--	--	--	--	--	--
67	0	--	--	--	--	--	--	--	--	--
68	1	4,370	3,480	3,526	101	623.85	293.12	47	40.50	290.23
Total or average	4,974	2,646,160	2,303,590	2,699,546	117	362,638.12	230,863.26	64	40,148.14	91,626.72

[1] As scaled by Bureau of Land Management scaler, east-side log scaling rules, Scribner Decimal C log rule.

[2] Lumber tally volume as percentage of net scale volume.

[3] Lumber cubic volume as percentage of log cubic volume.

Table 16.--Lumber grade yields by scaling diameter, No. 1 Peeler grade sawn-length logs

Log scaling diameter (inches)	Number of logs	Lumber tally volume	Lumber grades												
			B & Btr. Select	C Select	D Select	Moulding	Factory Select	No. 1 Shop	No. 2 Shop	No. 3 Shop	Select structural[1]	Construction	Standard	Utility	Economy
		Board feet	*Percent of lumber tally volume*												
30	1	551	14.52	24.14	5.26	0	3.63	1.63	6.90	3.99	26.68	3.99	2.00	3.45	3.81
31	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
32	3	2,701	4.11	27.32	3.15	0	11.66	8.03	9.29	.89	17.07	10.40	2.22	3.63	2.22
33	2	2,110	16.82	26.73	14.69	0	0	0	0	0	15.73	13.36	1.90	9.19	1.56
34	1	928	6.47	34.91	3.02	0	0	0	0	0	31.47	5.60	7.44	9.48	1.62
35	4	3,475	17.90	20.06	3.77	.81	2.76	1.29	6.85	.75	20.75	10.73	3.60	7.54	3.19
36	2	1,956	40.18	10.63	2.51	0	2.56	8.18	10.22	0	8.28	7.82	1.74	7.26	.61
37	2	1,965	46.62	10.89	.61	.15	7.89	6.36	.61	1.12	11.81	5.14	4.83	3.16	.81
38	3	2,891	28.19	25.84	10.24	0	0	0	0	0	7.40	11.80	4.70	9.55	2.28
39	1	1,096	3.65	23.91	14.05	0	0	0	0	0	22.99	9.49	3.56	11.68	10.68
40	1	1,261	0	11.42	23.55	0	0	0	0	0	0	26.96	9.12	23.31	5.63
41	4	4,731	19.51	22.57	13.95	0	.78	.95	5.07	.59	10.91	7.00	6.66	8.75	3.26
42	3	3,741	38.09	18.60	10.91	6.34	2.14	1.07	2.35	.99	5.45	6.34	1.31	4.36	2.06
43	3	3,413	30.82	18.14	3.11	9.96	3.81	4.92	4.66	2.55	9.76	4.28	1.76	3.63	2.61
44	3	4,593	26.50	29.78	8.75	0	5.42	1.76	1.18	1.74	4.99	6.62	3.92	6.92	2.42
45	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
46	3	5,094	42.34	14.25	1.94	0	6.48	5.77	1.35	0	12.86	5.40	1.55	5.06	2.98
47	2	3,050	50.16	12.82	5.28	15.08	.89	0	1.08	.33	5.87	3.97	1.15	2.85	.52
48	2	3,257	27.42	7.71	1.32	0	4.82	14.03	18.21	3.22	3.93	9.24	5.07	3.87	1.17
49	3	5,015	44.43	19.84	4.37	0	1.75	1.44	1.97	1.44	10.11	5.50	4.95	3.27	.94
50	1	1,989	24.53	32.13	2.16	0	3.52	2.92	12.27	0	4.58	11.11	1.61	4.07	1.11
51	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
52	3	6,052	49.77	16.89	3.26	6.38	0	.21	1.52	0	4.44	4.53	6.11	5.11	1.78
53	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
54	1	1,850	26.97	29.08	15.14	18.59	0	0	1.89	.32	0	2.49	0	3.89	1.62
55	1	3,855	68.77	10.40	2.67	0	6.38	1.89	.26	0	5.19	1.09	.60	1.87	.88
56	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
57	1	2,648	60.12	18.28	2.72	0	4.04	1.02	1.21	0	6.42	2.49	.42	3.29	0
58	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
59	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
60	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
61	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
62	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
63	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
64	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
65	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
66	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
67	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
68	1	3,526	44.07	28.16	3.91	1.64	0	0	0	0	2.21	2.67	4.03	5.30	8.00
Total or average	51	71,748	34.85	19.82	6.02	2.59	3.01	2.63	3.47	.72	8.88	6.67	3.39	5.61	2.34

[1] Includes 1-inch Select Merchantable lumber.

Table 17.--Lumber grade yields by scaling diameter, No. 2 Peeler grade sawn-length logs

Log scaling diameter (inches)	Number of logs	Lumber tally volume	Lumber grades												
			B & Btr. Select	C Select	D Select	Moulding	Factory Select	No. 1 Shop	No. 2 Shop	No. 3 Shop	Select Structural[1]	Construction	Standard	Utility	Economy
		Board feet	*Percent of lumber tally volume*												
30	6	4,065	10.73	13.48	3.44	0	11.14	8.51	5.19	0.79	13.58	17.93	6.91	5.78	2.51
31	5	4,454	17.09	20.21	2.42	.27	6.31	3.64	2.74	.45	18.52	12.19	3.30	4.83	8.04
32	10	6,215	10.78	24.01	5.31	.79	3.20	2.08	5.70	.51	15.14	12.42	6.19	11.13	2.74
33	3	2,458	12.21	9.44	7.28	1.10	14.69	3.78	3.86	.81	9.07	16.11	8.58	11.51	1.55
34	7	4,824	18.18	10.12	1.00	.95	11.71	7.77	4.31	.79	10.34	16.19	6.80	8.77	3.07
35	8	7,375	9.03	8.15	7.28	2.10	6.47	6.39	7.17	1.08	12.57	17.07	8.14	11.21	3.34
36	3	3,054	11.10	18.43	4.29	0	4.98	5.89	7.24	.43	14.34	16.14	9.23	6.35	1.57
37	10	10,895	20.48	12.57	6.76	.02	6.32	5.90	3.77	3.52	11.88	14.94	5.96	5.78	2.09
38	6	7,138	13.86	10.72	7.92	.34	5.62	6.09	4.85	1.33	10.51	14.04	12.45	6.58	5.70
39	8	9,426	33.32	19.15	5.00	2.79	2.37	1.46	.62	.11	11.39	12.03	4.42	4.68	2.66
40	5	5,696	23.16	24.39	2.97	5.32	.12	.56	.25	.47	18.94	9.43	9.18	4.49	.72
41	5	6,646	19.41	18.57	3.37	7.66	7.54	5.40	2.95	1.31	11.80	8.02	6.02	6.62	1.34
42	2	2,816	4.33	14.60	21.13	0	0	0	.82	0	6.04	22.94	11.33	15.87	2.95
43	7	10,084	27.43	19.71	4.70	0	7.26	3.90	4.50	.54	13.12	7.00	6.17	4.06	1.62
44	4	5,429	19.67	26.93	4.77	12.16	4.60	6.47	3.78	.85	4.37	5.89	2.93	4.95	2.63
45	5	8,179	36.97	25.85	6.14	4.41	2.68	2.97	2.79	1.16	4.40	4.49	2.38	2.98	2.78
46	3	4,356	31.45	14.10	3.63	0	8.65	7.58	8.61	.16	8.93	4.80	6.68	4.45	.96
47	3	4,958	57.12	12.12	2.26	0	5.95	2.54	.61	0	5.43	5.65	3.55	2.90	1.88
48	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
49	1	2,632	34.23	27.77	2.62	0	6.53	2.47	2.09	1.06	5.05	10.87	3.50	2.20	1.60
50	1	1,411	15.80	11.55	.71	0	28.70	16.09	9.64	0	1.98	4.18	3.97	5.10	2.27
51	1	1,916	27.35	13.67	2.77	0	10.23	8.87	10.28	.63	8.46	5.43	2.19	7.93	2.19
52	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
53	1	1,879	32.57	24.32	2.24	0	6.28	3.30	3.73	0	3.57	7.08	3.99	10.64	2.29
54	2	3,062	34.36	17.93	2.48	0	2.42	9.37	5.55	1.40	10.12	6.27	3.63	4.74	1.73
55	2	5,618	36.72	34.66	2.97	0	.80	1.10	.59	0	6.78	4.50	.11	9.95	1.82
56	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
57	1	1,797	62.60	16.58	1.22	0	8.35	.67	1.28	1.95	4.62	1.28	.39	.39	.67
58	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
59	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
60	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
61	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
62	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
63	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
64	1	3,643	32.75	15.07	.66	0	10.49	6.26	4.28	.25	5.98	3.49	3.84	13.23	3.71
65	1	2,672	43.04	25.94	8.31	0	5.35	1.50	1.38	2.62	3.48	1.38	.94	3.85	2.21
Total or average	111	132,698	24.90	18.26	4.84	1.82	5.93	4.49	3.74	.93	10.26	10.21	5.60	6.47	2.56

[1] Includes 1-inch Select Merchantable lumber.

Table 18.--Lumber grade yields by scaling diameter, No. 3 Peeler grade sawn-length logs

Log scaling diameter (inches)	Number of logs	Lumber tally volume	Lumber grades												
			B & Btr. Select	C Select	D Select	Moulding	Factory Select	No. 1 Shop	No. 2 Shop	No. 3 Shop	Select Structural[1/]	Construction	Standard	Utility	Economy
		Board feet	*Percent of lumber tally volume*												
24	34	18,119	4.77	9.33	7.13	4.85	0.40	0.52	0.98	0.36	30.97	23.89	9.07	6.19	1.53
25	27	14,335	7.19	12.35	5.46	1.88	.24	.24	1.07	.52	25.91	23.08	8.72	8.02	5.32
26	40	22,066	6.39	10.74	5.75	4.72	1.28	.63	.91	.87	24.72	23.80	9.75	7.28	3.16
27	33	21,839	8.86	13.19	6.20	1.09	1.57	.17	1.35	.15	24.22	25.53	7.63	7.59	2.45
28	38	24,420	8.56	12.45	3.71	4.49	2.34	3.07	2.00	.61	23.58	21.99	7.62	7.32	2.27
29	30	21,084	8.47	13.98	6.10	3.26	2.49	2.00	3.34	.59	15.89	21.90	9.10	9.10	3.76
30	22	16,320	8.00	14.20	5.48	6.28	2.79	2.79	2.82	.27	21.10	16.85	6.53	9.03	3.85
31	22	17,621	12.71	11.89	4.38	4.39	2.83	3.67	3.37	.47	20.26	19.16	8.84	5.28	2.75
32	18	14,231	9.76	11.72	5.11	2.39	3.06	2.71	3.96	.87	22.63	21.66	5.33	6.79	3.99
33	33	27,655	16.75	9.82	5.28	4.11	3.27	2.76	3.87	1.91	11.39	17.48	7.73	11.15	4.47
34	16	16,324	17.28	15.44	4.01	5.87	3.60	2.68	3.00	.82	14.54	17.81	6.04	5.91	3.00
35	28	27,640	12.75	16.33	4.54	6.19	3.35	2.00	3.34	.84	15.46	13.66	8.60	9.36	3.58
36	19	17,976	14.65	13.07	3.76	7.43	2.68	5.60	7.15	1.67	16.22	13.25	5.27	6.86	2.39
37	17	18,191	16.46	13.17	7.64	5.16	3.66	3.63	4.20	.47	10.57	15.87	6.71	7.16	5.30
38	19	22,847	22.15	16.35	4.84	1.76	2.66	2.28	2.71	.25	11.00	13.69	8.51	10.01	3.80
39	13	17,686	18.29	19.95	5.18	9.56	3.86	2.76	3.13	.62	13.63	10.69	4.08	6.16	2.11
40	19	25,818	24.90	16.92	7.21	8.55	1.84	2.13	3.71	1.12	7.80	11.39	4.42	6.44	3.58
41	9	10,568	22.37	16.00	3.67	8.35	3.63	3.20	2.46	.62	12.99	9.60	3.20	11.24	2.67
42	12	16,212	14.32	17.94	7.03	8.12	2.53	3.34	4.40	.44	7.97	13.36	6.27	8.59	5.69
43	12	19,079	26.64	18.63	8.51	4.39	1.63	2.21	3.55	.90	5.77	8.61	7.08	7.83	4.27
44	8	12,182	24.64	17.73	8.13	6.39	0	0	.26	.37	8.87	8.55	6.49	14.92	3.64
45	6	11,818	16.24	12.46	4.80	4.63	2.82	2.16	2.57	.74	7.05	13.60	15.32	15.21	2.43
46	5	7,058	8.44	10.44	6.49	15.63	4.82	4.35	6.53	4.99	5.89	9.83	6.22	10.50	5.87
47	6	10,880	17.05	15.56	6.31	17.56	2.58	6.46	5.28	1.08	7.42	8.48	4.35	4.72	3.16
48	10	19,706	25.83	23.97	8.77	6.27	1.09	1.61	1.62	.06	8.57	7.69	4.06	6.98	3.48
49	5	11,330	25.75	20.79	4.62	.51	3.26	2.56	3.92	.14	12.99	7.21	4.21	6.95	7.09
50	4	6,042	30.98	14.71	4.77	10.69	3.26	4.50	7.98	.91	4.60	4.17	3.82	6.72	2.88
51	3	7,368	46.63	23.62	1.90	.05	2.54	.12	.30	0	8.58	5.93	4.26	4.42	1.64
52	4	5,669	23.83	18.42	5.13	4.50	6.46	5.34	9.98	2.33	2.88	6.03	3.10	6.81	5.19
53	2	3,550	24.37	13.49	4.56	13.86	6.62	5.18	5.35	.11	3.61	3.04	2.34	15.21	2.25
54	2	5,608	43.85	18.49	4.10	.34	7.38	2.35	.53	0	8.10	8.56	1.03	3.03	2.23
55	1	2,177	67.71	16.08	0	0	1.06	.60	0	0	4.13	2.99	3.31	3.31	.83
56	1	1,836	72.88	17.10	0	0	.38	0	.60	0	3.43	1.74	1.58	1.91	.38
57	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
58	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
59	2	5,526	30.44	12.69	1.01	0	12.54	11.27	4.11	.47	7.82	4.25	2.77	7.51	5.12
60	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
61	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
62	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
63	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
64	1	3,602	61.10	17.13	2.75	1.44	0	0	0	0	1.72	1.75	2.75	6.33	5.02
Total or average	521	504,383	17.29	14.94	5.55	5.33	2.64	2.51	3.10	.75	14.54	15.04	6.75	8.03	3.54

[1/] Includes 1-inch Select Merchantable lumber.

Table 19.--Lumber grade yields by scaling diameter, Special Peeler grade sawn-length logs

Log scaling diameter (inches)	Number of logs	Lumber tally volume	Lumber grades												
			B & Btr. Select	C Select	D Select	Moulding	Factory Select	No. 1 Shop	No. 2 Shop	No. 3 Shop	Select Structural[1/]	Construction	Standard	Utility	Economy
		Board feet	*Percent of lumber tally volume*												
18	21	5,333	0.66	3.04	2.63	1.24	0	0	0.79	0.64	43.75	26.68	8.59	9.56	2.44
19	26	7,324	1.46	3.93	3.06	4.11	.27	.10	1.28	1.02	41.15	25.27	9.75	6.24	2.35
20	25	8,329	.73	4.36	3.77	3.83	.38	1.07	2.31	.60	33.61	28.90	10.36	7.53	2.56
21	30	11,244	2.88	9.93	5.54	2.33	.10	.46	1.60	.29	36.05	21.74	8.70	8.43	1.93
22	24	10,768	2.81	8.47	4.86	3.68	.34	.07	.86	.35	35.22	23.75	10.22	6.65	2.70
23	38	16,513	4.06	9.02	4.98	2.28	.16	.27	1.19	.22	36.23	20.23	9.80	9.03	2.53
Total or average	164	59,511	2.52	7.28	4.45	2.89	.21	.34	1.34	.45	36.93	23.56	9.63	7.98	2.42

[1/] Includes 1-inch Select Merchantable lumber.

Table 20.--Lumber grade yields by scaling diameter, No. 2 Sawmill sawn-length logs

Log scaling diameter (inches)	Number of logs	Lumber tally volume	Lumber grades												
			B & Btr. Select	C Select	D Select	Moulding	Factory Select	No. 1 Shop	No. 2 Shop	No. 3 Shop	Select Structural[1/]	Construction	Standard	Utility	Economy
		Board feet	*Percent of lumber tally volume*												
12	106	11,889	0.46	0.72	0.85	0.42	0	0.26	0.14	0.13	25.40	45.64	16.70	7.42	1.85
13	102	13,882	.04	.86	1.14	.48	0	.12	.12	0	25.48	46.75	16.27	6.51	2.23
14	109	18,053	.10	.82	.87	.99	.08	0	.07	.59	22.31	42.35	19.16	10.23	2.43
15	82	15,338	.08	1.22	1.50	.72	0	.18	.26	.65	24.86	42.50	14.81	9.53	3.70
16	100	22,884	.50	1.19	1.64	.50	.06	.07	.41	.43	24.59	40.40	18.76	8.22	3.22
17	87	21,784	.17	1.95	1.16	.78	.03	.32	.93	.48	31.36	39.51	14.45	7.29	1.57
18	83	24,453	.11	1.21	1.17	.81	0	.32	1.41	.45	22.74	44.11	17.15	8.45	2.07
19	70	21,758	.49	1.21	1.20	1.12	.02	.24	.74	.58	24.84	43.48	15.81	8.30	1.95
20	86	31,040	.73	1.90	1.78	1.12	.10	.74	1.70	.61	25.16	37.02	18.43	8.12	2.59
21	73	28,905	1.03	2.52	2.20	2.04	.10	.66	2.16	.58	20.84	40.07	15.66	9.80	2.34
22	74	30,642	.52	2.15	1.61	1.44	.12	.41	2.63	.38	23.61	39.62	15.52	9.20	2.80
23	77	36,835	1.92	3.19	2.44	1.27	.14	.93	2.83	.32	19.69	35.79	15.51	12.16	3.81
24	69	35,600	1.92	3.30	2.50	1.69	.60	1.50	3.11	.89	20.23	37.90	14.57	9.26	2.53
25	76	42,749	2.52	3.95	3.25	1.46	.68	1.58	3.56	.66	18.38	35.91	14.32	10.22	3.51
26	65	39,787	3.06	4.14	3.24	2.49	.35	1.72	3.72	.47	19.52	33.40	14.92	11.92	.05
27	58	36,555	2.50	5.34	2.80	3.43	.91	3.88	3.66	.77	15.75	31.39	16.05	10.60	2.94
28	66	43,506	1.86	5.37	3.28	2.24	1.39	2.96	3.79	.38	16.29	27.30	15.15	13.58	6.41
29	65	47,755	2.82	7.00	3.70	2.20	2.23	4.12	3.82	1.02	19.33	27.94	13.09	9.06	3.66
30	51	39,938	3.59	5.33	4.13	5.20	1.85	4.38	5.90	.56	13.29	25.40	13.47	12.35	4.56
31	60	49,758	5.01	7.39	5.07	3.47	2.04	4.51	5.57	1.06	13.22	25.33	12.94	10.89	3.50
32	54	47,764	5.30	6.20	3.31	2.54	1.56	3.04	5.47	1.25	15.00	23.62	14.77	13.33	4.60
33	53	47,999	5.49	8.19	5.48	4.98	1.02	2.72	6.23	1.33	13.45	19.24	13.98	12.74	5.15
34	54	53,063	9.73	9.31	4.44	3.96	2.34	3.77	5.11	.53	11.73	19.13	13.58	12.94	3.44
35	40	41,990	8.90	10.09	7.10	3.65	1.21	2.98	4.24	.93	13.04	18.72	10.81	14.93	3.39
36	38	38,117	6.86	8.14	4.71	3.37	2.54	5.37	7.02	1.88	8.90	20.69	10.65	14.03	5.82
37	39	45,194	6.01	9.69	5.30	5.11	1.61	4.54	5.68	1.68	9.59	22.50	12.18	11.71	4.42
38	30	35,650	7.02	10.52	6.42	3.87	1.37	4.62	4.39	.86	8.44	19.31	12.90	13.59	6.70
39	26	34,279	7.89	12.03	4.58	5.11	2.70	5.11	5.04	1.00	8.61	21.24	11.44	10.56	4.69
40	22	30,771	10.48	6.04	5.09	3.28	2.94	5.13	6.29	1.40	10.43	12.97	11.82	18.49	5.65
41	20	31,777	8.64	15.34	6.18	5.60	2.12	2.82	2.97	.87	7.10	17.33	14.10	12.09	4.81
42	16	22,369	8.40	12.25	5.15	2.84	1.45	3.63	7.54	1.67	12.38	14.99	9.52	12.59	7.60
43	11	15,191	6.76	8.72	5.61	6.70	5.83	9.10	12.32	2.87	6.46	10.19	10.00	12.38	3.05
44	12	17,022	11.09	13.52	5.53	7.05	3.64	6.50	10.03	1.29	6.47	12.30	10.26	8.78	3.54
45	17	26,781	10.96	13.41	6.75	1.69	5.25	2.58	3.32	.85	9.17	18.28	9.14	14.26	4.34
46	7	10,062	6.97	11.36	4.26	11.62	4.85	7.98	9.28	1.52	4.61	10.84	7.43	13.04	6.23
47	8	13,783	18.31	14.17	9.08	4.90	1.85	5.00	4.52	2.07	7.50	7.79	7.35	11.85	5.61
48	8	14,514	15.88	15.76	6.68	.59	3.85	2.70	3.41	.30	11.24	13.47	11.49	11.38	3.24
49	4	6,978	11.68	14.09	6.69	5.88	8.25	8.00	12.50	.90	6.74	7.52	6.19	8.81	2.75
50	5	9,494	19.39	10.34	5.52	8.13	6.91	12.32	6.14	.68	10.19	6.53	4.81	5.60	3.42
51	3	5,763	6.73	17.92	3.40	0	3.14	3.12	.66	.21	3.24	8.95	9.96	35.24	7.41
52	1	1,910	28.85	25.18	14.97	0	0	0	0	0	4.82	18.74	.84	3.98	2.62
53	1	2,587	6.84	14.15	6.73	0	0	0	0	0	0	16.08	5.88	37.73	12.60
54	2	2,616	27.41	28.63	2.71	0	12.92	1.64	.88	1.64	4.51	8.26	2.37	7.91	1.11
55	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
56	2	2,827	1.24	18.32	3.57	0	12.20	1.34	9.52	.28	3.71	8.91	8.77	19.49	12.63
57	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
58	1	2,179	2.16	7.99	.78	.37	0	0	0	0	2.39	13.95	7.34	29.42	35.61
59	1	3,224	18.11	17.56	5.61	1.89	0	0	0	0	0	15.60	8.59	21.65	10.98
60	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
61	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
62	1	3,486	40.91	14.37	2.95	1.95	0	0	0	0	.46	10.47	8.49	9.04	11.36
Total or average	2,035	1,180,501	5.26	7.01	3.98	3.01	1.60	3.01	4.19	.88	15.20	26.64	13.49	11.64	4.08

[1/] Includes 1-inch Select Merchantable lumber.

Table 21.--Lumber grade yields by scaling diameter, No. 3 Sawmill sawn-length logs

Log scaling diameter (inches)	Number of logs	Lumber tally volume	Lumber grades												
			B & Btr. Select	C Select	D Select	Moulding	Factory Select	No. 1 Shop	No. 2 Shop	No. 3 Shop	Select Structural[1/]	Construction	Standard	Utility	Economy
		Board feet	*Percent of lumber tally volume*												
6	48	1,605	0.75	1.50	0.50	0	0	0	0	0	6.98	55.20	17.32	13.83	3.93
7	35	1,406	0	.57	0	0	0	0	0	0	6.26	46.51	28.31	11.38	6.97
8	105	5,231	.27	.46	.44	.34	.10	0	0	0	9.79	50.43	23.38	11.89	2.91
9	123	8,119	.28	.73	.12	.07	0	.21	.47	.15	10.35	42.83	29.14	12.64	3.02
10	144	11,262	.18	.59	.38	.26	0	0	.13	.10	13.72	43.78	22.32	14.62	3.92
11	152	15,160	.43	.92	.57	.12	.16	0	.08	0	13.21	44.47	23.62	12.78	3.63
12	62	7,459	.16	.40	.40	.55	0	0	0	.28	3.94	35.19	31.41	22.67	4.99
13	69	10,320	.10	.26	.40	.25	0	0	0	.15	3.28	38.56	31.75	18.95	6.31
14	73	11,769	.08	.65	.20	.51	0	0	0	.31	2.85	33.67	32.29	20.30	9.14
15	85	15,541	.41	.39	.17	.14	0	.06	0	0	4.98	38.74	32.06	17.90	5.15
16	94	21,403	.05	.29	.28	.14	.03	.17	.55	.44	6.19	34.45	31.61	20.89	4.92
17	74	18,865	.17	.37	.68	.46	.07	.06	.57	.27	6.20	27.08	29.97	26.14	7.96
18	90	24,633	.37	.69	.32	.28	0	0	.88	.67	6.84	33.65	26.68	23.55	6.06
19	80	25,357	.13	.86	1.06	.70	.06	.13	1.61	.54	3.82	28.56	32.01	22.72	7.78
20	95	32,980	.13	.85	.47	.47	.06	.29	2.43	1.43	4.46	30.19	28.23	24.03	6.95
21	66	25,331	.44	1.05	.73	.46	.24	.53	2.18	.56	7.17	28.50	24.80	25.52	7.82
22	76	31,833	.30	.57	.82	.41	.10	.39	3.36	1.23	7.06	28.54	25.03	24.46	7.74
23	59	27,541	.39	.98	.98	.56	.07	.64	4.34	1.17	5.00	24.78	30.35	22.54	8.20
24	57	28,599	.49	.79	.98	.80	.10	1.00	4.97	1.22	7.79	28.35	25.49	21.55	6.48
25	64	34,461	.21	1.51	1.18	.61	.15	1.63	3.95	1.22	4.79	33.32	24.15	19.71	7.56
26	56	32,659	.41	.96	1.32	1.05	.19	1.03	5.66	1.97	5.24	22.19	28.64	23.22	8.11
27	55	34,522	.86	1.33	.98	1.88	.60	2.41	8.04	2.19	4.88	19.23	22.94	26.45	8.21
28	38	26,311	.54	1.49	1.15	.99	1.23	1.88	6.67	.99	2.92	26.07	25.80	21.75	8.53
29	42	30,948	1.36	2.06	1.54	2.07	.84	4.44	9.09	1.98	4.74	21.33	21.61	20.24	8.70
30	31	22,586	.84	2.25	1.98	2.07	.92	3.20	6.75	1.60	5.04	18.36	24.53	22.14	10.32
31	32	27,147	.36	2.23	1.68	2.04	.81	3.79	11.03	.89	3.41	16.79	25.47	22.43	9.07
32	36	31,049	1.36	3.05	2.49	1.89	1.43	4.17	8.51	1.43	3.64	18.91	19.23	24.62	9.26
33	20	18,245	1.53	2.53	2.52	.67	.86	6.57	7.20	.73	3.37	23.27	21.23	19.79	9.72
34	22	20,797	1.53	1.80	1.26	1.28	.61	3.71	10.44	2.59	1.75	14.72	26.43	26.71	7.17
35	16	17,206	.67	2.07	1.37	1.30	.71	2.93	4.30	.56	2.64	26.28	20.73	26.78	9.66
36	19	21,969	.84	2.11	2.17	3.31	1.17	4.52	7.91	1.63	1.65	18.78	18.71	25.06	12.14
37	9	12,805	2.28	6.19	1.51	1.21	3.33	6.44	3.61	.17	2.12	24.02	19.50	21.12	8.50
38	9	9,692	1.28	6.02	1.85	3.75	3.57	5.98	7.71	1.15	.92	11.51	17.66	29.76	8.85
39	12	19,049	.16	2.57	2.02	.76	1.46	2.28	4.77	.71	2.34	10.74	11.72	43.44	17.03
40	8	9,098	1.29	2.58	2.42	.71	.31	6.42	11.48	1.92	1.24	15.30	20.64	28.78	6.91
41	6	9,031	3.29	4.43	4.64	2.81	1.67	10.00	6.51	1.23	1.13	11.76	13.00	26.32	13.21
42	4	4,575	.22	.66	1.57	4.83	.81	4.87	6.40	.35	5.40	18.84	15.37	32.55	8.13
43	4	6,249	.86	5.23	1.86	.11	2.14	3.89	6.27	2.78	1.02	6.35	14.79	46.49	8.19
44	1	922	5.75	1.41	2.60	19.31	2.06	6.94	23.54	4.34	0	22.99	7.81	3.25	0
45	8	12,836	2.81	3.08	2.52	2.76	.37	4.95	10.65	3.65	.75	10.63	11.04	32.47	14.31
46	2	3,135	0	.48	0	0	0	0	3.22	6.44	.64	4.94	27.18	34.35	22.74
47	3	4,979	1.25	1.51	2.47	1.81	.16	1.79	2.47	1.91	0	5.42	14.52	53.52	13.18
48	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
49	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
50	3	4,450	1.73	8.81	3.12	3.55	.25	6.90	15.82	5.78	1.08	5.35	6.61	24.52	16.49
51	1	2,040	.88	6.52	4.75	.20	0	0	0	0	2.21	23.28	12.25	28.48	21.42
52	1	2,402	0	3.79	2.87	0	0	0	0	0	0	0	4.75	74.52	14.07
53	1	2,363	4.23	4.15	.80	.34	0	0	0	0	.68	1.82	8.84	37.96	41.18
54	1	1,600	.81	0	2.06	33.31	0	14.25	16.75	3.31	0	6.19	5.25	13.25	4.81
55	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
56	1	3,165	.70	7.93	6.67	0	0	0	0	0	0	13.78	14.19	48.63	8.12
Total or average	2,092	750,705	.69	1.68	1.29	1.19	.55	2.15	4.91	1.19	4.66	25.01	24.14	24.08	8.46

[1/] Includes 1-inch Select Merchantable lumber.

Table 22.--Log scale, lumber tally, and cubic volumes by scaling diameter, No. 1 Peeler grade woods-length logs

Log scaling diameter (inches)	Number of logs	Log scale[1]		Lumber tally		Cubic volume				
		Gross	Net	Volume	Recovery ratio[2]	Log	Lumber	Lumber recovery ratio[3]	Sawdust	Residue
		Board feet			*Percent*	*Cubic feet*		*Percent*	*Cubic feet*	
31	2	2,840	2,550	2,772	109	449.19	238.20	53	40.80	170.19
32	2	2,390	1,800	1,949	108	340.08	167.09	49	31.42	141.57
33	3	5,100	4,260	5,693	134	841.41	488.67	58	79.00	273.74
34	3	4,800	4,610	5,674	123	788.55	496.46	63	76.46	215.63
35	3	5,690	5,310	6,420	121	819.91	570.99	70	107.41	141.51
36	3	2,880	2,730	3,113	114	407.25	261.94	64	44.99	100.32
37	2	3,090	2,730	3,272	120	417.05	279.42	67	44.35	93.28
38	4	7,470	6,440	8,131	126	1,220.50	695.82	57	114.85	409.83
39	8	13,720	11,830	14,399	122	2,012.72	1,240.18	62	212.66	559.88
40	2	2,700	2,180	2,793	128	334.67	235.63	70	41.33	57.71
41	2	2,860	1,650	1,729	105	395.78	146.30	37	31.61	217.87
42	5	12,090	10,320	11,589	112	1,791.63	991.74	55	155.98	643.91
43	4	7,330	6,450	7,468	116	965.39	635.49	66	106.80	223.10
44	1	3,140	2,540	2,647	104	485.36	240.79	50	49.41	195.16
45	2	5,320	4,320	5,475	127	748.50	470.55	63	70.40	207.55
46	4	8,360	6,030	7,712	128	813.96	653.45	80	99.14	61.37
47	4	12,720	11,470	12,404	108	1,883.05	1,090.02	58	177.51	615.52
48	3	6,060	4,840	6,262	129	814.10	535.12	66	90.49	188.49
49	0	--	--	--	--	--	--	--	--	--
50	2	6,080	5,580	6,192	111	937.00	531.29	57	78.81	326.90
51	3	8,280	7,690	8,694	113	1,193.74	766.74	64	127.65	299.35
52	0	--	--	--	--	--	--	--	--	--
53	0	--	--	--	--	--	--	--	--	--
54	1	4,370	3,460	4,679	135	641.29	399.90	62	57.12	184.27
55	2	5,810	4,950	5,691	115	795.58	484.95	61	64.99	245.64
56	0	--	--	--	--	--	--	--	--	--
57	0	--	--	--	--	--	--	--	--	--
58	0	--	--	--	--	--	--	--	--	--
59	2	8,500	7,200	8,198	114	1,193.24	712.11	60	118.87	362.26
60	0	--	--	--	--	--	--	--	--	--
61	0	--	--	--	--	--	--	--	--	--
62	0	--	--	--	--	--	--	--	--	--
63	1	3,730	3,150	3,643	116	552.21	320.78	58	52.77	178.66
64	0	--	--	--	--	--	--	--	--	--
65	0	--	--	--	--	--	--	--	--	--
66	0	--	--	--	--	--	--	--	--	--
67	1	4,230	3,360	3,526	105	624.43	293.12	47	40.50	290.81
Total or average	69	147,560	127,450	150,125	118	21,466.59	12,946.75	60	2,115.32	6,404.52

[1] As scaled by Forest Service scaler, Bureau log scaling rules, Scribner Decimal C log rule.

[2] Lumber tally volume as percentage of net scale volume.

[3] Lumber cubic volume as percentage of log cubic volume.

Table 23.--Log scale, lumber tally, and cubic volumes by scaling diameter, No. 2 Peeler grade woods-length logs

Log scaling diameter (inches)	Number of logs	Log scale[1]		Lumber tally		Cubic volume				
		Gross	Net	Volume	Recovery ratio[2]	Log	Lumber	Lumber recovery ratio[3]	Sawdust	Residue
		Board feet			*Percent*	*Cubic feet*		*Percent*	*Cubic feet*	
30	2	2,130	1,890	2,044	108	289.58	178.71	62	33.62	77.25
31	2	3,200	2,860	3,819	134	566.49	324.22	57	43.80	198.47
32	5	6,540	5,490	6,517	119	1,030.98	560.31	54	89.12	381.55
33	2	2,260	2,000	2,383	119	347.82	201.20	58	35.06	111.56
34	3	5,000	4,610	6,078	132	881.25	521.47	59	95.77	264.01
35	8	14,660	12,700	16,054	126	2,363.71	1,400.69	59	254.94	708.08
36	5	8,280	7,320	8,878	121	1,269.93	754.19	59	105.54	410.20
37	7	12,220	9,840	12,243	124	1,830.89	1,061.19	58	173.14	596.56
38	3	6,660	5,670	6,589	116	1,062.19	568.39	54	110.42	383.38
39	6	10,780	9,690	11,235	116	1,547.47	963.32	62	142.28	441.87
40	3	6,180	5,590	6,490	116	916.35	590.65	64	108.93	216.77
41	4	9,060	7,290	9,344	128	1,328.25	806.43	61	115.74	406.08
42	3	7,390	6,830	7,274	107	955.81	666.01	70	122.91	166.89
43	5	12,900	12,390	14,438	117	1,834.42	1,297.84	71	226.43	310.15
44	5	11,840	9,840	11,698	119	1,630.09	1,000.75	61	176.92	452.42
45	4	10,440	9,830	11,050	112	1,680.36	933.37	56	148.04	598.95
46	3	5,550	4,850	6,015	124	852.35	503.97	59	73.62	274.76
47	1	3,310	2,690	2,551	95	393.80	224.98	57	47.17	121.65
48	5	14,490	12,550	14,649	117	2,088.12	1,287.39	62	235.54	565.19
49	2	5,840	4,970	5,597	113	813.06	488.66	60	75.42	248.98
50	1	3,280	1,170	168	14	405.16	14.54	4	2.82	387.80
51	1	1,950	1,190	1,728	145	240.59	145.55	60	32.77	62.27
52	1	4,050	3,890	3,844	99	578.81	330.97	57	41.16	206.68
53	1	4,210	3,150	2,237	71	547.86	193.78	35	32.96	321.12
54	2	6,830	5,610	6,348	113	849.13	544.94	64	81.37	222.82
55	0	--	--	--	--	--	--	--	--	--
56	0	--	--	--	--	--	--	--	--	--
57	0	--	--	--	--	--	--	--	--	--
58	0	--	--	--	--	--	--	--	--	--
59	0	--	--	--	--	--	--	--	--	--
60	0	--	--	--	--	--	--	--	--	--
61	1	3,500	2,940	3,486	119	419.35	291.87	70	38.41	89.07
62	0	--	--	--	--	--	--	--	--	--
63	1	3,730	3,150	3,602	114	461.02	301.06	65	43.05	116.91
Total or average	86	186,280	160,000	186,359	116	27,184.84	16,156.45	59	2,686.95	8,341.44

[1] As scaled by Forest Service scaler, Bureau log scaling rules, Scribner Decimal C log rule.

[2] Lumber tally volume as percentage of net scale volume.

[3] Lumber cubic volume as percentage of log cubic volume.

Table 24.--Log scale, lumber tally, and cubic volumes by scaling diameter, No. 3 Peeler grade woods-length logs

Log scaling diameter (inches)	Number of logs	Log scale[1]		Lumber tally		Cubic volume				
		Gross	Net	Volume	Recovery ratio[2]	Log	Lumber	Lumber recovery ratio[3]	Sawdust	Residue
		Board feet			*Percent*	*Cubic feet*		*Percent*	*Cubic feet*	
24	16	12,790	12,090	15,231	126	2,194.17	1,292.15	59	232.19	669.83
25	27	25,420	22,060	28,416	129	3,968.83	2,407.71	61	371.52	1,189.60
26	19	20,240	18,050	22,842	127	3,156.20	1,967.19	62	341.93	847.08
27	30	32,360	29,330	35,613	121	4,943.57	3,068.57	62	562.36	1,312.64
28	18	20,500	18,860	23,170	123	3,149.68	1,985.58	63	325.37	838.73
29	25	30,150	27,610	33,239	120	4,710.31	2,863.46	61	534.53	1,312.32
30	13	16,260	14,950	18,566	124	2,665.85	1,582.49	59	278.23	805.13
31	24	36,150	31,580	38,857	123	5,516.13	3,366.35	61	587.83	1,561.95
32	23	35,500	32,010	39,384	123	5,703.72	3,427.95	60	606.18	1,669.59
33	13	21,200	19,780	24,471	124	3,299.34	2,104.86	64	365.92	828.56
34	13	21,100	19,530	24,032	123	3,557.62	2,077.57	58	363.88	1,116.17
35	12	23,200	20,220	26,900	133	3,553.72	2,322.89	65	442.19	788.64
36	8	15,350	13,990	17,716	127	2,494.75	1,518.29	61	247.42	729.04
37	9	18,140	15,970	20,268	127	2,621.88	1,761.86	67	301.07	558.95
38	14	29,650	24,680	31,216	126	4,285.46	2,748.43	64	533.67	1,003.36
39	12	24,640	21,260	25,668	121	3,671.06	2,250.35	61	454.63	966.08
40	7	14,740	12,110	13,738	113	1,966.92	1,176.39	60	226.37	564.16
41	4	9,060	7,530	8,790	117	1,301.19	775.19	60	156.05	369.95
42	6	16,300	13,900	15,537	112	2,212.05	1,413.29	64	289.97	508.79
43	4	9,590	7,880	10,141	129	1,355.83	890.98	66	139.59	325.26
44	7	17,750	14,840	18,210	123	2,447.60	1,589.50	65	287.40	570.70
45	2	4,560	3,990	5,025	126	566.36	433.75	77	76.67	55.94
46	2	5,550	4,800	5,222	109	798.27	470.70	59	84.57	243.00
47	3	8,480	7,250	8,053	111	1,133.84	701.51	62	116.81	315.52
48	3	9,520	8,800	10,343	118	1,261.87	907.83	72	133.99	220.05
49	1	3,590	2,810	3,349	119	624.30	304.56	49	71.56	248.18
50	1	3,280	2,110	2,594	123	421.24	229.89	55	44.58	146.77
51	0	--	--	--	--	--	--	--	--	--
52	0	--	--	--	--	--	--	--	--	--
53	1	2,630	2,370	3,234	136	408.23	269.50	66	35.56	103.17
54	1	3,280	2,780	3,434	124	489.22	298.55	61	45.64	145.03
Total or average	318	490,980	433,140	533,259	123	74,479.21	46,207.34	62	8,257.68	20,014.19

[1] As scaled by Forest Service scaler, Bureau log scaling rules, Scribner Decimal C log rule.

[2] Lumber tally volume as percentage of net scale volume.

[3] Lumber cubic volume as percentage of log cubic volume.

Table 25.--Log scale, lumber tally, and cubic volumes by scaling diameter, Special Peeler grade woods-length logs

Log scaling diameter (inches)	Number of logs	Log scale[1]		Lumber tally		Cubic volume				
		Gross	Net	Volume	Recovery ratio[2]	Log	Lumber	Lumber recovery ratio[3]	Sawdust	Residue
		Board feet			Percent	Cubic feet		Percent	Cubic feet	
18	25	11,560	11,130	14,694	132	2,021.82	1,233.27	61	216.39	572.16
19	16	8,520	7,750	10,882	140	1,517.04	910.14	60	146.19	460.71
20	28	17,390	15,950	21,877	137	2,841.14	1,859.67	65	311.07	670.40
21	24	14,360	13,380	17,290	129	2,305.64	1,459.57	63	251.89	594.18
22	27	18,040	16,530	22,219	134	3,021.34	1,885.13	62	351.97	784.24
23	30	25,130	23,370	30,277	130	4,185.75	2,590.51	62	449.60	1,145.64
Total or average	150	95,000	88,110	117,239	133	15,892.73	9,938.29	63	1,727.11	4,227.33

[1] As scaled by Forest Service scaler, Bureau log scaling rules, Scribner Decimal C log rule.

[2] Lumber tally volume as percentage of net scale volume.

[3] Lumber cubic volume as percentage of log cubic volume.

Table 26.--Log scale, lumber tally, and cubic volumes by scaling diameter, No. 1 Sawmill grade woods-length logs

Log scaling diameter (inches)	Number of logs	Log scale[1]		Lumber tally		Cubic volume				
		Gross	Net	Volume	Recovery ratio[2]	Log	Lumber	Lumber recovery ratio[3]	Sawdust	Residue
		Board feet			Percent	Cubic feet		Percent	Cubic feet	
35	1	1,750	1,500	1,647	110	303.05	140.40	46	22.95	139.70
36	0	--	--	--	--	--	--	--	--	--
37	0	--	--	--	--	--	--	--	--	--
38	2	4,280	3,510	4,250	121	737.87	367.74	50	66.03	304.10
39	0	--	--	--	--	--	--	--	--	--
40	1	2,410	1,800	2,273	126	397.06	194.71	49	30.70	171.65
41	0	--	--	--	--	--	--	--	--	--
42	0	--	--	--	--	--	--	--	--	--
43	0	--	--	--	--	--	--	--	--	--
44	0	--	--	--	--	--	--	--	--	--
45	0	--	--	--	--	--	--	--	--	--
46	0	--	--	--	--	--	--	--	--	--
47	0	--	--	--	--	--	--	--	--	--
48	0	--	--	--	--	--	--	--	--	--
49	0	--	--	--	--	--	--	--	--	--
50	0	--	--	--	--	--	--	--	--	--
51	1	1,950	1,350	1,447	107	289.75	121.63	42	21.65	146.47
Total or average	5	10,390	8,160	9,617	118	1,727.73	824.48	48	141.33	761.92

[1] As scaled by Forest Service scaler, Bureau log scaling rules, Scribner Decimal C log rule.

[2] Lumber tally volume as percentage of net scale volume.

[3] Lumber cubic volume as percentage of log cubic volume.

Table 27.--Log scale, lumber tally, and cubic volumes by scaling diameter, No. 2 Sawmill grade woods-length logs

Log scaling diameter (inches)	Number of logs	Log scale[1]		Lumber tally		Cubic volume				
		Gross	Net	Volume	Recovery ratio[2]	Log	Lumber	Lumber recovery ratio[3]	Sawdust	Residue
		Board feet			*Percent*	*Cubic feet*		*Percent*	*Cubic feet*	
12	73	11,630	11,060	19,148	173	2,599.79	1,585.65	61	276.74	737.40
13	65	11,830	11,480	19,643	171	2,468.66	1,628.20	66	285.08	555.38
14	85	19,460	18,290	29,802	163	3,898.51	2,462.75	63	428.11	1,007.65
15	68	19,360	18,250	27,866	153	3,620.45	2,311.33	64	387.04	922.08
16	59	18,760	17,740	27,756	156	3,409.10	2,309.13	68	370.69	729.28
17	84	29,980	27,420	41,858	153	5,323.07	3,496.19	66	595.71	1,231.17
18	64	26,350	24,070	35,478	147	4,370.12	2,953.92	68	485.68	930.52
19	53	25,450	23,530	34,701	147	4,251.61	2,940.47	69	458.82	852.32
20	52	28,910	26,500	36,901	139	4,455.34	3,090.05	69	524.74	840.55
21	51	32,470	30,320	41,821	138	5,162.77	3,512.78	68	577.22	1,072.77
22	50	32,730	30,060	41,036	137	5,075.87	3,437.48	68	592.42	1,045.97
23	58	43,060	37,020	52,578	142	6,489.87	4,440.04	68	716.61	1,333.22
24	52	44,650	40,800	54,093	133	6,735.35	4,606.94	68	783.66	1,344.75
25	49	45,400	38,670	51,164	132	6,660.08	4,354.03	65	747.86	1,558.19
26	37	38,280	33,500	44,027	131	5,625.36	3,745.18	67	667.59	1,212.59
27	32	38,430	35,460	43,892	124	5,385.22	3,736.38	69	641.71	1,007.13
28	39	45,560	41,100	50,324	122	6,230.19	4,307.34	69	672.53	1,250.32
29	39	52,050	47,020	60,630	129	7,643.13	5,250.78	69	949.74	1,442.61
30	30	39,740	34,330	42,707	124	5,634.46	3,684.86	65	679.10	1,270.50
31	32	47,100	40,660	49,979	123	6,742.90	4,285.03	64	705.91	1,751.96
32	28	41,580	33,730	44,683	132	5,814.14	3,860,22	66	742.66	1,211.26
33	34	54,720	45,930	61,322	134	7,764.49	5,265.74	68	822.28	1,676.47
34	25	39,800	34,850	45,424	130	6,166.69	3,963.74	64	763.98	1,438.97
35	17	31,620	25,880	34,522	133	4,806.53	2,955.12	61	557.84	1,293.57
36	20	34,500	29,180	38,260	131	5,037.94	3,306.88	66	585.72	1,145.34
37	13	23,930	17,630	20,895	119	3,270.29	1,820.30	56	326.78	1,123.21
38	13	28,000	22,320	28,364	127	4,032.66	2,456.49	61	438.86	1,137.31
39	12	26,880	23,400	30,236	129	3,786.67	2,612.57	69	417.93	756.17
40	9	22,270	17,610	20,668	117	2,952.23	1,807.26	61	351.55	793.42
41	9	24,960	19,680	27,102	138	3,398.38	2,317.77	68	379.67	700.94
42	3	7,380	6,110	7,154	117	996.39	618.91	64	140.01	207.47
43	7	17,780	13,890	16,289	117	2,480.11	1,427.04	58	291.08	761.99
44	3	6,480	4,900	6,326	129	810.71	552.85	68	110.96	146.90
45	4	10,270	8,370	10,107	121	1,482.97	858.49	58	147.98	476.50
46	4	11,910	8,220	11,423	139	1,609.27	998.60	62	213.49	397.18
47	5	16,350	14,270	16,513	116	2,233.28	1,455.86	65	251.02	526.40
48	2	3,890	1,310	2,609	199	478.13	219.23	46	66.03	192.87
49	3	8,530	5,490	7,234	132	1,020.07	632.26	62	125.38	262.43
50	3	8,420	6,650	7,681	116	1,139.87	677.40	59	136.72	325.75
51	0	--	--	--	--	--	--	--	--	--
52	0	--	--	--	--	--	--	--	--	--
53	2	5,000	3,450	4,950	143	678.14	423.33	62	72.99	181.82
54	0	--	--	--	--	--	--	--	--	--
55	0	--	--	--	--	--	--	--	--	--
56	1	2,940	1,640	3,165	193	434.73	271.59	62	57.36	105.78
57	1	3,040	2,550	2,179	85	366.99	185.25	50	21.29	160.45
58	0	--	--	--	--	--	--	--	--	--
59	1	3,270	2,740	3,224	118	392.74	271.29	69	35.03	86.42
Total or average	1,291	1,084,720	937,080	1,255,734	134	162,905.27	107,096.72	66	18,603.57	37,204.98

[1] As scaled by Forest Service scaler, Bureau log scaling rules, Scribner Decimal C log rule.
[2] Lumber tally volume as percentage of net scale volume.
[3] Lumber cubic volume as percentage of log cubic volume.

Table 28.--Log scale, lumber tally, and cubic volumes by scaling diameter, No. 3 Sawmill grade woods-length logs

Log scaling diameter (inches)	Number of logs	Log scale[1]		Lumber tally		Cubic volume				
		Gross	Net	Volume	Recovery ratio[2]	Log	Lumber	Lumber recovery ratio[3]	Sawdust	Residue
		Board feet			*Percent*	*Cubic feet*		*Percent*	*Cubic feet*	
5	7	240	240	495	206	85.56	42.00	49	7.30	36.26
6	56	2,230	2,080	3,617	174	590.84	304.98	52	57.95	227.91
7	47	2,070	2,030	4,198	207	631.91	350.00	55	64.16	217.75
8	97	5,690	5,450	11,532	212	1,699.69	948.36	57	185.04	536.29
9	107	7,750	7,310	15,513	212	2,230.23	1,280.56	57	233.19	716.48
10	96	9,580	8,800	16,266	185	2,343.91	1,343.19	57	249.29	751.43
11	114	13,790	13,010	22,821	175	3,210.89	1,894.65	59	335.94	980.30
12	35	4,220	3,760	8,303	221	1,088.29	686.58	63	123.40	278.31
13	39	4,690	3,940	8,628	219	1,135.69	714.17	63	123.93	297.59
14	37	6,280	5,180	11,191	216	1,451.29	914.71	63	174.45	362.13
15	35	7,570	6,020	12,164	202	1,565.18	1,006.53	64	174.37	384.28
16	37	9,000	6,730	12,848	191	1,839.65	1,061.42	58	192.28	585.95
17	37	10,660	8,740	16,320	187	2,119.74	1,378.05	65	224.92	516.77
18	25	6,960	5,170	8,154	158	1,233.15	678.70	55	123.29	431.16
19	28	11,610	9,010	16,306	181	2,074.79	1,365.81	66	239.80	469.18
20	25	12,120	9,630	14,655	152	1,976.07	1,228.54	62	198.94	548.59
21	30	13,880	9,980	17,705	177	2,305.26	1,467.90	64	270.70	566.66
22	23	11,300	9,340	13,662	146	1,829.17	1,154.11	63	206.56	468.50
23	20	12,480	9,000	15,298	170	2,017.50	1,283.91	64	236.72	496.87
24	22	13,870	11,170	17,048	153	2,192.44	1,444.61	66	271.41	476.42
25	19	14,200	10,970	16,470	150	2,113.68	1,400.79	66	233.07	479.82
26	19	17,240	13,330	20,274	152	2,540.33	1,727.76	68	283.02	529.55
27	18	18,640	14,190	21,288	150	2,679.60	1,830.83	68	337.38	511.39
28	12	11,130	8,550	11,760	138	1,580.62	998.40	63	179.08	403.14
29	14	13,780	10,610	16,659	157	2,045.37	1,395.88	68	254.03	395.46
30	9	9,270	6,450	10,202	158	1,334.18	867.83	65	136.44	329.91
31	7	9,410	7,200	11,019	153	1,380.05	941.31	68	150.65	288.09
32	11	15,960	11,340	16,514	146	2,446.10	1,406.67	58	237.95	801.48
33	2	3,630	2,980	4,014	135	518.95	344.09	66	55.10	119.76
34	5	5,800	3,910	5,164	132	803.91	438.93	55	69.35	295.63
35	4	5,910	3,870	6,409	166	815.84	561.99	69	125.20	128.65
36	2	3,000	1,750	2,833	162	426.51	243.14	57	42.27	141.10
37	3	5,930	3,860	5,392	140	773.88	458.74	59	98.69	216.45
38	0	--	--	--	--	--	--	--	--	--
39	4	7,560	5,600	7,801	139	1,042.22	664.78	64	136.19	241.25
40	2	5,110	3,060	4,120	135	680.45	354.05	52	59.42	266.98
41	1	2,540	2,410	2,123	88	362.50	195.59	54	47.38	119.53
42	2	3,690	2,700	3,240	120	454.28	278.45	61	40.26	135.57
43	3	7,670	4,710	7,706	164	1,018.74	661.06	65	122.99	234.69
44	2	5,370	3,120	5,829	187	808.18	498.40	62	68.71	241.07
45	0	--	--	--	--	--	--	--	--	--
46	1	1,980	1,680	2,026	121	262.24	173.37	66	36.94	51.93
47	1	3,720	1,800	2,270	126	462.01	193.38	42	32.45	236.18
48	1	2,810	1,080	1,213	112	384.21	102.79	27	20.31	261.11
49	0	--	--	--	--	--	--	--	--	--
50	1	4,210	2,580	3,265	127	520.92	280.21	54	46.46	194.25
51	0	--	--	--	--	--	--	--	--	--
52	1	2,530	1,590	2,402	151	318.23	207.56	65	41.10	69.57
Total or average	1,061	347,080	265,930	436,717	164	59,364.25	36,774.78	62	6,548.08	16,041.39

[1] As scaled by Forest Service scaler, Bureau log scaling rules, Scribner Decimal C log rule.

[2] Lumber tally volume as percentage of net scale volume.

[3] Lumber cubic volume as percentage of log cubic volume.

Table 29.--Log scale, lumber tally, and cubic volumes by scaling diameter, all grades of woods-length logs

Log scaling diameter (inches)	Number of logs	Log scale[1]		Lumber tally		Cubic volume				
		Gross	Net	Volume	Recovery ratio[2]	Log	Lumber	Lumber recovery ratio[3]	Sawdust	Residue
		Board feet			Percent	Cubic feet		Percent	Cubic feet	
5	7	240	240	495	206	85.56	42.00	49	7.30	36.26
6	56	2,230	2,080	3,617	174	590.84	304.98	52	57.95	227.91
7	47	2,070	2,030	4,198	207	631.91	350.00	55	64.16	217.75
8	97	5,690	5,450	11,532	212	1,669.69	948.36	57	185.04	536.29
9	107	7,750	7,310	15,513	212	2,230.23	1,280.56	57	233.19	716.48
10	96	9,580	8,800	16,266	185	2,343.91	1,343.19	57	249.29	751.43
11	114	13,790	13,010	22,821	175	3,210.89	1,894.65	59	335.94	980.30
12	108	15,850	14,820	27,451	185	3,688.08	2,272.23	62	400.14	1,015.71
13	104	16,520	15,420	28,271	183	3,604.35	2,342.37	65	409.01	852.97
14	122	25,740	23,470	40,993	175	5,349.80	3,377.46	63	602.56	1,369.78
15	103	26,930	24,270	40,030	165	5,185.63	3,317.86	64	561.41	1,306.36
16	96	27,760	24,470	40,604	166	5,248.75	3,370.55	64	562.97	1,315.23
17	121	40,640	36,160	58,178	161	7,442.81	4,874.24	65	820.63	1,747.94
18	114	44,870	40,370	58,326	144	7,625.09	4,865.89	64	825.36	1,933.84
19	97	45,580	40,290	61,889	154	7,843.44	5,216.42	67	844.81	1,782.21
20	105	58,420	52,080	73,433	141	9,272.55	6,178.26	67	1,034.75	2,059.54
21	105	60,710	53,680	76,816	143	9,773.67	6,440.25	66	1,099.81	2,233.61
22	100	62,070	55,930	76,917	138	9,926.38	6,476.72	65	1,150.95	2,298.71
23	108	80,670	69,390	98,153	141	12,693.12	8,314.46	66	1,402.93	2,975.73
24	90	71,310	64,060	86,372	135	11,121.96	7,343.70	66	1,287.26	2,491.00
25	95	85,020	71,700	96,050	134	12,742.59	8,162.53	64	1,352.45	3,227.61
26	75	75,760	64,880	87,143	134	11,321.89	7,440.13	66	1,292.54	2,589.22
27	80	89,430	78,980	100,793	128	13,008.39	8,635.78	66	1,541.45	2,831.16
28	69	77,190	68,510	85,254	124	10,960.49	7,291.32	67	1,176.98	2,492.19
29	78	95,980	85,240	110,528	130	14,398.81	9,510.12	66	1,738.30	3,150.39
30	54	67,400	57,620	73,519	128	9,924.07	6,313.89	64	1,127.39	2,482.79
31	67	98,700	84,850	106,446	125	14,654.76	9,155.11	62	1,528.99	3,970.66
32	69	101,970	84,370	109,047	129	15,335.02	9,422.24	61	1,707.33	4,205.45
33	54	86,910	74,950	97,883	131	12,772.01	8,404.56	66	1,357.36	3,010.09
34	49	76,500	67,510	86,372	128	12,198.02	7,498.17	61	1,369.44	3,330.41
35	45	82,830	69,480	91,952	132	12,662.76	7,952.08	63	1,510.53	3,200.15
36	38	64,010	54,970	70,800	129	9,636.38	6,084.44	63	1,025.94	2,526.00
37	34	63,310	50,030	62,070	124	8,913.99	5,381.51	60	944.03	2,588.45
38	36	76,060	62,620	78,550	125	11,338.68	6,836.87	60	1,263.83	3,237.98
39	42	83,580	71,780	89,339	124	12,060.14	7,731.20	64	1,363.69	2,965.25
40	24	53,410	42,350	50,082	118	7,247.68	4,358.69	60	818.30	2,070.69
41	20	48,480	38,560	49,088	127	6,786.10	4,241.28	62	730.45	1,814.37
42	19	46,850	39,860	44,794	112	6,380.16	3 968.40	62	749.13	1,662.63
43	23	55,270	45,320	56,042	124	7,654.49	4,912.41	64	886.89	1,855.19
44	18	44,580	35,240	44,710	127	6,181.94	3,882.29	63	693.40	1,606.25
45	12	30,590	26,510	31,657	119	4,478.19	2,696.16	60	443.09	1,338.94
46	14	31,350	25,580	32,398	127	4,336.09	2,800.09	65	507.76	1,028.24
47	14	44,580	37,480	41,791	112	6,105.98	3,665.75	60	624.96	1,815.27
48	14	36,770	28,580	35,076	123	5,026.43	3,052.36	61	546.36	1,427.71
49	6	17,960	13,270	16,180	122	2,457.43	1,425.48	58	272.36	759.59
50	8	25,270	18,090	19,900	110	3,424.19	1,733.33	51	309.39	1,381.47
51	5	12,180	10,230	11,869	116	1,724.08	1,033.92	60	182.07	508.09
52	2	6,580	5,480	6,246	114	897.04	538.53	60	82.26	276.25
53	4	11,840	8,970	10,421	116	1,634.23	886.61	54	141.51	606.11
54	4	14,480	11,850	14,461	122	1,979.64	1,243.39	63	184.13	552.12
55	2	5,810	4,950	5,691	115	795.58	484.95	61	64.99	245.64
56	1	2,940	1,640	3,165	193	434.73	271.59	62	57.36	105.78
57	1	3,040	2,550	2,179	85	366.99	185.25	50	21.29	160.45
58	0	--	--	--	--	--	--	--	--	--
59	3	11,770	9,940	11,422	115	1,585.98	983.40	62	153.90	448.68
60	0	--	--	--	--	--	--	--	--	--
61	1	3,500	2,940	3,486	119	419.35	291.87	70	38.41	89.07
62	0	--	--	--	--	--	--	--	--	--
63	2	7,460	6,300	7,245	115	1,013.23	621.84	61	95.82	295.57
64	0	--	--	--	--	--	--	--	--	--
65	0	--	--	--	--	--	--	--	--	--
66	0	--	--	--	--	--	--	--	--	--
67	1	4,230	3,360	3,526	105	624.43	293.12	47	40.50	290.81
Total or average	2,980	2,362,010	2,019,870	2,689,050	133	363,020.62	229,944.81	63	40,080.04	92,995.77

[1] As scaled by Forest Service scaler, Bureau log scaling rules, Scribner Decimal C log rule.

[2] Lumber tally volume as percentage of net scale volume.

[3] Lumber cubic volume as percentage of log cubic volume.

Table 30.--Lumber grade yields by scaling diameter, No. 1 Peeler grade woods-length logs

Log scaling diameter (inches)	Number of logs	Lumber tally volume	Lumber grades												
			B & Btr. Select	C Select	D Select	Moulding	Factory Select	No. 1 Shop	No. 2 Shop	No. 3 Shop	Select Structural 1/	Construction	Standard	Utility	Economy
		Board feet	*Percent of lumber tally volume*												
31	2	2,772	34.49	20.17	7.97	0	0	0	0	0	20.09	6.42	0.72	5.63	4.51
32	2	1,949	6.05	26.83	22.58	0	0	0	0	0	10.47	12.83	4.31	13.85	3.08
33	3	5,693	12.88	23.98	4.00	0	3.21	4.78	6.24	.23	16.58	9.87	3.44	11.72	3.07
34	3	5,674	47.43	11.63	1.34	.55	6.54	4.93	2.06	.83	12.44	5.25	3.01	3.12	.86
35	3	6,420	12.32	11.57	10.03	8.64	5.02	.73	1.09	.16	18.72	18.83	5.51	5.79	1.57
36	3	3,113	61.77	15.03	1.73	0	0	.42	.87	0	9.44	8.19	1.06	.93	.55
37	2	3,272	23.41	23.90	8.28	0	1.47	0	.21	0	12.04	17.15	10.48	2.60	.46
38	4	8,131	14.36	17.76	8.06	.39	1.75	5.50	6.75	2.63	10.21	19.35	6.53	3.87	2.84
39	8	14,399	35.83	18.06	5.95	6.43	0	.61	.61	.07	15.83	7.12	2.92	4.38	2.19
40	2	2,793	29.25	19.51	0	0	0	0	.25	.25	9.88	15.68	15.93	7.52	1.72
41	2	1,729	17.64	32.97	1.74	0	1.45	0	.87	.75	15.10	13.94	4.86	5.49	5.21
42	5	11,589	30.28	20.49	6.94	0	6.28	2.44	1.82	.90	8.86	6.09	4.88	9.19	1.83
43	4	7,468	39.77	25.88	1.61	0	6.64	2.97	1.14	0	10.62	5.70	3.11	1.79	.76
44	1	2,647	16.92	17.23	11.94	33.13	0	1.66	.72	.38	3.29	1.25	2.12	7.48	3.89
45	2	5,475	29.53	23.87	7.32	0	.91	1.30	.95	.97	13.88	10.05	3.16	5.90	2.16
46	4	7,712	65.20	11.84	.52	0	.35	.19	.62	0	10.22	8.26	1.41	1.18	.21
47	4	12,404	28.68	23.81	6.66	10.46	2.99	1.62	3.90	.80	6.46	7.30	2.30	3.39	1.64
48	3	6,262	50.06	16.45	1.68	0	3.78	3.16	1.90	1.09	7.28	8.61	4.02	1.21	.75
49	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
50	2	6,192	33.03	26.57	2.91	.06	3.33	3.59	4.15	.76	6.28	5.04	5.31	7.04	1.94
51	3	8,694	55.33	16.74	5.21	8.40	.20	.15	1.58	.07	5.18	2.56	.60	2.62	1.38
52	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
53	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
54	1	4,679	48.69	21.99	2.78	0	9.02	1.05	.94	.49	5.17	5.21	1.00	3.65	0
55	2	5,691	70.09	12.56	1.81	0	4.45	1.28	.37	0	4.62	1.30	.91	1.88	.72
56	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
57	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
58	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
59	2	8,198	34.55	17.00	3.39	0	10.20	8.09	3.22	1.17	6.40	3.32	2.17	6.32	4.17
60	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
61	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
62	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
63	1	3,643	32.75	15.07	.66	0	10.49	6.26	4.28	.25	5.98	3.49	3.84	13.23	3.71
64	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
65	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
66	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
67	1	3,526	44.07	28.16	3.91	1.64	0	0	0	0	2.21	2.67	4.03	5.30	8.00
Total or average	69	150,125	36.23	19.32	4.93	3.00	3.41	2.28	2.09	.55	9.87	7.81	3.53	4.96	2.01

1/ Includes 1-inch Select Merchantable lumber.

Table 31.--Lumber grade yields by scaling diameter, No. 2 Peeler grade woods-length logs

Log scaling diameter (inches)	Number of logs	Lumber tally volume	Lumber grades												
			B & Btr. Select	C Select	D Select	Moulding	Factory Select	No. 1 Shop	No. 2 Shop	No. 3 Shop	Select Structural 1/	Construction	Standard	Utility	Economy
		Board feet	*Percent of lumber tally volume*												
30	2	2,044	20.11	8.90	1.32	0	9.00	5.19	5.43	1.37	2.54	14.68	10.37	16.10	4.99
31	2	3,819	18.98	17.05	2.70	1.13	1.31	3.09	5.16	0	23.12	9.32	11.42	4.90	1.83
32	5	6,517	21.85	11.92	1.69	.75	3.82	5.60	9.59	1.33	12.61	14.65	6.83	5.86	3.48
33	2	2,383	42.55	16.79	3.02	0	0	0	0	0	16.70	12.25	3.57	4.20	.92
34	3	6,078	24.48	40.77	4.36	0	0	.33	.76	.15	17.03	4.39	4.00	3.01	.72
35	8	16,054	24.08	22.22	7.70	.20	4.73	5.39	4.53	.70	11.60	9.34	2.54	4.37	2.60
36	5	8,878	34.28	13.42	1.43	.27	2.13	.73	1.85	.19	18.47	14.35	7.51	2.74	2.64
37	7	12,243	17.14	18.37	3.02	1.39	4.76	5.89	4.15	.20	12.16	13.75	5.55	8.19	5.41
38	3	6,589	24.91	22.64	7.24	0	4.58	3.28	2.25	.99	11.11	11.87	3.13	4.86	3.16
39	6	11,235	19.80	17.45	2.43	0	5.96	5.78	7.25	1.62	15.67	8.94	5.48	7.87	1.76
40	3	6,490	37.27	16.10	7.70	12.42	.11	.99	.34	1.65	12.47	6.46	1.56	2.06	.88
41	4	9,344	33.36	17.65	4.09	.30	2.25	.90	1.32	.60	16.36	9.44	4.32	6.31	3.10
42	3	7,274	11.59	21.69	4.56	6.61	5.17	5.97	7.71	.76	12.17	13.71	3.99	5.06	1.02
43	5	14,438	21.53	16.39	8.35	14.50	1.77	2.10	4.44	.88	10.60	9.57	4.38	4.03	1.46
44	5	11,698	26.54	18.89	11.54	0	4.68	2.03	2.39	.64	8.02	10.28	5.97	5.54	3.47
45	4	11,050	33.03	17.64	2.25	1.29	.48	.97	.84	0	13.78	12.69	7.27	5.09	4.68
46	3	6,015	40.15	21.46	4.79	1.20	.45	1.11	0	0	5.80	6.92	3.41	7.55	7.17
47	1	2,551	17.52	18.62	2.51	0	20.31	4.12	2.90	1.57	10.15	9.68	8.11	3.25	1.25
48	5	14,649	24.63	22.49	5.22	5.73	4.57	5.14	7.54	.41	6.41	5.86	3.22	5.71	3.07
49	2	5,597	17.74	19.74	3.29	.39	4.09	6.36	6.56	0	7.97	7.16	7.90	9.77	9.02
50	1	168	0	11.31	11.90	0	6.55	0	6.55	5.36	6.55	11.31	7.14	19.64	13.69
51	1	1,728	23.61	23.44	1.39	0	0	0	.69	0	1.22	12.15	20.02	15.05	2.43
52	1	3,844	47.03	22.09	3.49	0	1.40	3.10	1.35	0	8.06	5.91	2.08	4.45	1.04
53	1	2,237	1.39	24.81	4.83	0	6.53	2.64	5.50	1.25	2.06	6.35	6.03	25.48	13.14
54	2	6,348	57.75	14.78	2.66	0	9.25	2.47	.83	.55	4.44	2.99	1.65	1.95	.66
55	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
56	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
57	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
58	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
59	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
60	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
61	1	3,486	40.91	14.37	2.95	1.95	0	0	0	0	.46	10.47	8.49	9.04	11.36
62	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
63	1	3,602	61.10	17.13	2.75	1.44	0	0	0	0	1.72	1.75	2.75	6.33	5.02
Total or average	86	186,359	27.46	19.21	4.85	2.64	3.58	3.20	3.68	.60	11.07	9.57	5.00	5.82	3.31

1/ Includes 1-inch Select Merchantable lumber.

Table 32.--Lumber grade yields by scaling diameter, No. 3 Peeler grade woods-length logs

Log scaling diameter (inches)	Number of logs	Lumber tally volume	Lumber grades												
			B & Btr Select	C Select	D Select	Moulding	Factory Select	No. 1 Shop	No. 2 Shop	No. 3 Shop	Select Structural 1/	Construction	Standard	Utility	Economy
		Board feet	*Percent of lumber tally volume*												
24	16	15,231	4.96	7.05	7.51	2.51	1.27	0.16	1.71	0.71	21.01	32.42	11.30	6.27	3.13
25	27	28,416	7.03	9.88	3.16	.92	1.42	.82	1.50	.33	30.63	24.68	7.30	8.06	4.28
26	19	22,842	6.04	11.45	4.43	6.74	1.67	1.46	2.22	.53	18.34	24.78	12.44	7.07	2.81
27	30	35,613	7.72	11.27	5.25	5.21	2.43	3.23	4.12	.37	18.12	23.66	9.61	7.05	1.94
28	18	23,170	5.39	11.66	4.18	2.80	1.10	2.29	2.02	.32	28.90	19.69	6.98	10.10	4.59
29	25	33,239	8.18	13.01	4.76	2.77	3.89	3.78	4.38	.55	19.37	19.74	8.42	8.02	3.14
30	13	18,566	15.48	12.68	3.65	.11	4.51	2.01	1.41	.07	22.06	23.03	6.99	5.10	2.89
31	24	38,857	7.91	10.25	5.55	6.66	2.21	3.72	4.82	.91	14.95	21.02	8.41	10.03	3.56
32	23	39,384	9.75	10.65	5.71	6.35	3.36	3.93	6.22	1.65	15.51	18.75	7.76	7.01	3.36
33	13	24,471	8.84	9.98	5.92	6.28	2.58	3.62	4.53	.98	17.96	14.79	8.78	11.76	3.98
34	13	24,032	20.31	14.01	4.81	3.90	3.63	5.14	4.37	.66	13.23	14.44	5.91	6.38	3.21
35	12	26,900	11.86	13.38	9.51	2.70	1.32	1.09	3.22	1.83	8.23	23.04	9.04	10.65	4.13
36	8	17,716	9.20	12.98	3.89	3.62	1.91	4.84	4.54	1.22	11.54	20.31	11.63	10.00	4.32
37	9	20,268	11.95	11.64	4.05	5.39	5.78	3.86	5.81	.68	11.36	18.29	10.39	6.92	3.86
38	14	31,216	11.15	13.85	8.01	8.96	4.46	5.87	3.32	.48	6.10	14.99	8.48	9.67	4.67
39	12	25,668	13.43	15.36	6.02	9.23	1.88	4.23	5.96	1.38	11.33	11.39	6.46	8.10	5.24
40	7	13,738	19.19	17.80	8.93	4.86	0	1.07	1.08	.36	6.09	12.61	8.52	13.27	6.22
41	4	8,790	17.35	14.85	7.62	20.00	0	.91	3.13	1.46	7.58	5.63	5.03	11.21	5.24
42	6	15,537	15.96	13.58	11.27	17.46	.84	3.71	9.14	2.43	2.64	8.08	6.91	5.81	2.18
43	4	10,141	15.57	24.12	9.40	0	3.13	4.15	4.42	.52	7.33	9.77	6.91	12.78	1.90
44	7	18,210	14.15	7.74	5.55	6.23	5.33	5.08	4.59	2.35	6.56	15.05	8.68	13.37	5.33
45	2	5,025	3.68	8.26	10.25	0	0	0	0	0	2.23	18.95	25.00	29.71	1.93
46	2	5,222	17.83	14.23	3.39	0	5.69	10.76	14.69	1.38	13.75	7.53	4.69	4.81	1.26
47	3	8,053	3.99	15.82	10.63	4.82	2.82	5.46	10.47	1.75	11.05	12.70	6.99	10.57	2.93
48	3	10,343	26.43	19.54	7.46	0	3.73	2.83	3.74	.66	12.86	11.92	3.13	6.09	1.60
49	1	3,349	8.09	3.73	13.20	28.81	1.49	7.08	3.28	1.22	0	4.36	3.64	20.33	4.75
50	1	2,594	13.69	13.30	.35	0	13.22	12.84	7.59	2.62	7.36	9.25	5.59	12.26	1.93
51	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
52	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
53	1	3,234	43.04	23.10	2.57	.59	0	0	0	0	10.67	11.69	.99	3.87	3.49
54	1	3,434	28.07	42.11	2.91	0	0	0	0	0	7.51	3.67	0	13.31	2.42
Total or average	318	533,259	11.21	12.61	5.97	5.34	2.70	3.35	4.16	.92	14.69	18.17	8.29	8.96	3.63

1/ Includes 1-inch Select Merchantable lumber.

Table 33.--Lumber grade yields by scaling diameter, Special Peeler grade woods-length logs

Log scaling diameter (inches)	Number of logs	Lumber tally volume	Lumber grades												
			B & Btr. Select	C Select	D Select	Moulding	Factory Select	No. 1 Shop	No. 2 Shop	No. 3 Shop	Select Structural[1/]	Construction	Standard	Utility	Economy
		Board feet	*Percent of lumber tally volume*												
18	25	14,694	0.80	2.22	4.04	3.48	0.47	0.50	1.72	0.99	35.42	32.35	10.07	5.78	2.16
19	16	10,882	.65	4.57	2.32	1.29	.04	.85	1.32	.35	39.72	26.38	7.60	12.43	2.48
20	28	21,877	1.01	4.98	3.57	2.86	.02	.94	2.23	.43	34.34	31.35	11.04	5.50	1.71
21	24	17,290	2.65	5.25	4.08	2.15	.21	.09	1.45	.86	35.60	26.27	11.60	8.18	1.61
22	27	22,219	3.49	11.18	5.19	5.49	.18	1.41	2.30	.26	27.58	23.75	11.13	6.57	1.46
23	30	30,277	5.32	9.56	5.20	2.02	.04	.91	2.42	.40	28.76	30.92	6.19	5.18	3.08
Total or average	150	117,239	2.78	6.99	4.32	2.97	.14	.83	2.03	.52	32.44	28.71	9.45	6.69	2.13

[1/] Includes 1-inch Select Merchantable lumber.

Table 34.--Lumber grade yields by scaling diameter, No. 1 Sawmill grade woods-length logs

Log scaling diameter (inches)	Number of logs	Lumber tally volume	Lumber grades												
			B & Btr. Select	C Select	D Select	Moulding	Factory Select	No. 1 Shop	No. 2 Shop	No. 3 Shop	Select Structural[1/]	Construction	Standard	Utility	Economy
		Board feet	*Percent of lumber tally volume*												
35	1	1,647	2.13	6.31	1.94	0	20.52	10.44	2.06	1.58	19.67	17.30	9.23	7.35	1.46
36	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
37	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
38	2	4,250	14.42	14.87	15.86	.85	4.28	1.22	1.65	.28	16.24	14.56	5.15	7.29	3.32
39	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
40	1	2,273	13.42	18.21	2.42	0	12.89	7.39	4.66	0	18.92	9.41	7.00	4.31	1.36
41	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
42	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
43	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
44	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
45	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
46	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
47	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
48	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
49	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
50	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
51	1	1,447	56.46	21.08	3.32	0	0	0	0	0	2.21	5.25	.97	.55	10.16
Total or average	5	9,617	18.40	15.13	8.41	.37	8.45	4.08	2.18	.40	15.35	12.42	5.66	5.58	3.57

[1/] Includes 1-inch Select Merchantable lumber.

Table 35.--Lumber grade yields by scaling diameter, No. 2 Sawmill grade woods-length logs

Log scaling diameter (inches)	Number of logs	Lumber tally volume	Lumber grades												
			B & Btr. Select	C Select	D Select	Moulding	Factory Select	No. 1 Shop	No. 2 Shop	No. 3 Shop	Select Structural[1/]	Construction	Standard	Utility	Economy
		Board feet	*Percent of lumber tally volume*												
12	73	19,148	0.13	0.86	0.68	0.68	0	0.17	0.09	0.34	23.39	42.03	16.20	12.29	3.15
13	65	19,643	.08	.46	.85	.47	0	0	.13	.21	17.62	48.87	22.21	7.27	1.82
14	85	29,802	.18	1.06	1.23	.76	.09	.10	.52	.45	19.49	42.94	20.36	9.23	3.57
15	68	27,866	.33	1.57	1.45	.69	.04	.13	.67	.72	22.31	42.14	19.66	7.82	2.47
16	59	27,756	.31	1.91	.93	.77	.02	.11	1.28	.38	20.73	43.31	18.25	9.58	2.41
17	84	41,858	.45	1.15	.98	1.06	.10	.61	.95	.61	22.55	36.65	20.45	11.07	3.35
18	64	35,478	.18	1.45	1.02	.55	.05	.45	1.66	.59	18.06	39.02	21.08	13.05	2.84
19	53	34,701	.60	2.37	1.59	1.24	0	.21	1.18	.48	22.23	36.07	20.28	11.94	1.79
20	52	36,901	.85	1.73	2.14	1.38	.07	.69	3.02	.50	13.06	39.92	20.14	12.20	4.30
21	51	41,821	1.12	2.23	1.65	.95	.24	.59	2.52	.63	14.91	41.02	17.18	12.83	4.13
22	50	41,036	1.05	1.58	2.00	1.35	.35	1.05	4.44	.74	14.93	32.97	20.95	14.11	4.49
23	58	52,578	1.47	2.01	1.77	1.00	.16	1.27	2.54	.41	13.10	33.73	21.31	16.58	4.64
24	52	54,093	1.90	3.70	2.36	2.26	1.52	3.50	5.32	.99	14.83	32.16	15.15	11.29	5.01
25	49	51,164	2.12	4.29	2.88	1.67	.77	1.60	3.60	1.33	12.54	30.54	18.85	15.25	4.57
26	37	44,027	2.16	3.83	3.56	2.01	.97	2.82	5.22	.82	13.93	30.24	16.93	13.04	4.44
27	32	43,892	2.96	5.10	3.26	2.66	.92	1.93	3.25	.53	16.65	28.90	18.09	11.33	4.43
28	39	50,324	2.74	5.50	3.19	2.23	1.34	2.93	4.68	1.01	15.01	28.83	15.54	13.10	3.89
29	39	60,630	3.89	7.38	3.50	3.33	2.40	5.10	6.95	1.71	11.16	24.15	15.32	10.90	4.21
30	30	42,707	3.52	6.11	5.41	4.37	1.81	3.87	7.28	1.20	9.79	23.13	14.59	14.02	4.90
31	32	49,979	4.46	4.45	2.50	2.81	2.61	4.05	7.35	1.18	12.15	22.28	17.07	13.32	5.79
32	28	44,683	3.25	4.43	2.89	3.48	1.28	5.79	7.00	.92	6.26	23.58	15.95	17.88	7.30
33	34	61,322	5.06	6.06	3.10	1.94	1.76	2.63	5.10	1.09	11.12	22.54	17.64	16.26	5.70
34	25	45,424	5.71	6.71	5.70	6.18	1.17	3.61	7.15	1.48	5.79	21.22	16.39	13.73	5.18
35	17	34,522	3.39	6.66	4.94	4.36	1.65	4.19	4.41	.84	9.87	19.72	16.68	18.07	5.22
36	20	38,260	3.46	7.73	5.81	3.96	1.20	4.24	5.89	1.91	4.94	20.08	15.53	19.11	6.12
37	13	20,895	3.16	8.49	3.21	3.79	5.28	8.24	5.64	1.01	4.48	24.46	13.20	12.64	6.40
38	13	28,364	4.52	8.76	4.51	6.46	.58	6.08	5.69	1.42	4.92	17.61	15.42	18.31	5.73
39	12	30,236	6.18	9.03	3.16	2.22	2.52	3.99	5.23	1.48	8.56	19.74	13.94	16.06	7.89
40	9	20,668	3.86	9.80	5.51	5.10	2.40	6.43	9.11	1.99	4.49	17.05	16.25	14.53	3.48
41	9	27,102	9.60	9.01	5.07	.37	.75	1.29	2.90	.23	11.16	19.19	13.28	22.35	4.81
42	3	7,154	20.62	13.42	3.30	0	11.64	6.30	4.24	.42	7.58	8.34	8.29	12.66	3.19
43	7	16,289	4.28	5.77	3.73	5.40	5.54	10.38	9.71	2.54	3.30	10.52	13.29	17.73	7.82
44	3	6,326	5.45	13.75	2.50	7.02	.54	5.80	7.32	1.15	5.50	15.82	10.84	19.16	5.14
45	4	10,107	3.75	17.52	2.51	.94	2.11	3.69	5.65	1.78	2.22	16.40	16.89	20.06	6.48
46	4	11,423	5.82	9.24	7.02	14.37	1.43	2.84	5.17	2.75	1.72	7.02	7.36	17.27	17.98
47	5	16,513	20.54	16.22	6.76	4.38	5.89	5.31	4.83	.37	10.19	7.97	8.55	6.01	2.98
48	2	2,609	5.63	15.64	3.95	0	0	0	0	0	2.03	5.83	6.40	23.92	36.60
49	3	7,234	10.64	12.39	2.21	0	10.70	14.17	9.04	.98	3.12	7.30	6.43	15.87	7.15
50	3	7,681	1.99	4.44	3.10	8.93	0	6.42	11.80	2.68	1.05	9.20	7.55	32.69	10.14
51	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
52	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
53	2	4,950	5.60	9.37	3.90	.16	0	0	0	0	.32	9.27	7.29	37.84	26.24
54	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
55	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
56	1	3,165	.70	7.93	6.67	0	0	0	0	0	0	13.78	14.19	48.63	8.12
57	1	2,179	2.16	7.99	.78	.37	0	0	0	0	2.39	13.95	7.34	29.42	35.61
58	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
59	1	3,224	18.11	17.56	5.61	1.89	0	0	0	0	0	15.60	8.59	21.65	10.98
Total or average	1,291	1,255,734	3.21	5.07	3.05	2.55	1.32	2.88	4.42	.98	12.44	28.01	16.88	14.19	5.02

[1/] Includes 1-inch Select Merchantable lumber.

Table 36.--Lumber grade yields by scaling diameter, No. 3 Sawmill grade woods-length logs

Log scaling diameter (inches)	Number of logs	Lumber tally volume	Lumber grades												
			B & Btr. Select	C Select	D Select	Moulding	Factory Select	No. 1 Shop	No. 2 Shop	No. 3 Shop	Select Structural 1/	Construction	Standard	Utility	Economy
		Board feet	*Percent of lumber tally volume*												
5	7	495	1.41	2.42	0	0	0	0	0	0	4.65	50.51	22.22	15.15	3.64
6	56	3,617	.77	1.00	.22	0	0	.47	0	0	13.33	49.35	19.77	11.69	3.40
7	47	4,198	.57	.10	.69	0	.12	0	.26	.26	9.89	49.55	22.89	10.43	5.24
8	97	11,532	.32	.76	.24	.25	0	.08	.23	0	11.19	49.33	23.92	10.48	3.20
9	107	15,513	.08	.50	.49	.57	0	0	.29	.16	7.95	38.05	29.68	18.92	3.31
10	96	16,266	.12	.75	.57	.13	0	.04	.19	.19	11.32	38.44	25.49	18.19	4.56
11	114	22,821	.44	.62	.71	.58	.11	.01	.09	.12	18.04	39.63	22.07	13.11	4.47
12	35	8,303	.10	.31	.05	.72	0	0	.49	.30	8.03	31.02	31.40	22.85	4.72
13	39	8,628	.12	1.54	.42	.43	0	0	.58	1.46	4.02	24.20	31.66	27.71	7.86
14	37	11,191	0	.63	.32	.56	0	.27	2.73	1.97	2.43	25.45	33.04	26.40	6.22
15	35	12,164	.26	.53	.30	0	0	0	.28	.58	2.01	31.45	34.82	21.93	7.84
16	37	12,848	.04	.34	.47	.10	.16	.25	1.35	.31	3.53	24.81	28.55	30.32	9.77
17	37	16,320	.59	.40	.80	.23	.12	.26	2.97	1.52	4.25	19.93	28.73	32.41	7.79
18	25	8,154	.09	.12	.16	.47	.16	.34	3.32	1.61	2.58	26.06	29.24	26.34	9.52
19	28	16,306	.31	.50	.48	.53	.02	.57	2.54	.89	1.94	26.26	32.81	24.71	8.43
20	25	14,655	.36	.42	.51	.28	.20	.19	1.77	.61	6.46	24.76	29.68	24.18	10.57
21	30	17,705	.66	1.10	.72	.23	.23	.21	1.77	.98	4.94	17.00	26.94	34.30	10.93
22	23	13,662	1.09	1.71	1.24	.38	0	.42	2.28	.72	3.70	24.45	29.32	26.40	8.28
23	20	15,298	.54	1.55	1.34	1.32	.03	.95	4.89	.87	3.56	16.04	26.85	31.00	11.06
24	22	17,048	.37	.56	2.01	2.35	.15	2.75	12.48	1.75	4.32	20.67	21.47	23.21	7.92
25	19	16,470	.35	1.93	1.65	2.25	.49	2.93	6.67	1.01	2.08	18.79	28.65	23.70	9.49
26	19	20,274	.41	.74	1.02	1.07	.59	3.50	6.74	2.55	2.66	22.66	25.45	24.72	7.89
27	18	21,288	.60	2.77	1.38	2.13	1.60	3.39	8.17	1.87	2.44	14.99	23.92	30.59	6.15
28	12	11,760	1.11	2.24	1.89	2.57	0	2.03	5.67	.99	3.87	27.47	22.44	20.33	9.39
29	14	16,659	.49	1.38	1.15	2.01	.23	1.65	3.92	.82	2.68	17.79	19.30	31.14	17.43
30	9	10,202	.12	2.14	.95	.31	.29	3.41	9.80	2.62	.12	7.52	24.18	37.27	11.27
31	7	11,019	.52	4.24	1.60	0	.85	2.01	3.18	.95	1.70	15.20	22.70	32.83	14.23
32	11	16,514	1.94	3.66	2.58	.73	1.62	2.94	7.41	1.50	.57	8.62	17.43	36.05	14.95
33	2	4,014	.27	1.79	2.82	0	.82	0	2.89	.87	2.67	14.80	38.69	29.47	4.91
34	5	5,164	.46	1.99	1.20	0	.89	2.58	7.71	1.41	3.87	12.28	11.33	41.58	14.70
35	4	6,409	2.11	2.53	3.65	5.09	4.68	9.10	13.47	2.00	0	4.63	5.49	32.27	14.99
36	2	2,833	0	3.60	1.76	0	6.95	8.93	5.05	1.06	2.40	6.57	21.32	30.43	11.93
37	3	5,392	.06	.54	1.28	2.56	0	3.86	11.89	1.67	.72	4.66	19.70	38.46	14.61
38	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
39	4	7,801	.24	2.91	2.44	.35	1.95	.24	5.78	.82	.10	4.01	9.55	52.70	18.91
40	2	4,120	.92	5.53	2.14	0	1.50	12.43	14.95	2.65	.44	8.86	22.65	18.23	9.71
41	1	2,123	.19	0	2.78	6.36	1.04	17.90	38.62	3.77	0	1.13	.19	13.57	14.46
42	2	3,240	5.46	8.49	1.20	.22	0	5.15	10.19	2.50	2.81	12.56	19.35	16.64	15.43
43	3	7,706	9.49	12.29	4.66	.17	.48	2.65	6.03	3.41	5.77	4.23	6.44	29.13	15.25
44	2	5,829	3.57	9.28	4.77	0	.75	4.01	4.41	2.30	.33	6.66	12.92	47.23	3.77
45	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
46	1	2,026	.39	2.07	1.88	0	0	0	0	0	0	4.69	15.00	63.52	12.44
47	1	2,270	.44	6.74	2.91	0	5.64	4.32	5.33	2.03	10.31	13.61	21.15	20.04	7.49
48	1	1,213	4.45	2.72	7.01	0	.66	4.04	2.23	3.13	0	.49	4.29	55.73	15.25
49	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
50	1	3,265	7.41	12.71	1.41	0	16.91	4.32	10.26	.21	5.94	12.01	12.25	11.52	5.05
51	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
52	1	2,402	0	3.79	2.87	0	0	0	0	0	0	0	4.75	74.52	14.07
Total or average	1,061	436,717	.79	1.85	1.25	.87	.63	1.71	4.43	1.15	4.63	22.14	24.35	27.07	9.15

1/ Includes 1-inch Select Merchantable lumber.

☆ U. S. GOVERNMENT PRINTING OFFICE: 1973—797-949/25 REGION 10

Lane, Paul H., John W. Henley, Richard O. Woodfin, Jr., and Marlin E. Plank

1973. Lumber recovery from old-growth Coast Douglas-fir. USDA For. Serv. Res. Pap. PNW-154, 44 p., illus. Pacific Northwest Forest and Range Experiment Station, Portland, Oregon.

Lumber grade yields and recovery ratios obtained from old-growth Douglas-fir logs are presented for two log scaling and grading practices. The logs came from trees selected from commercial sawtimber stands throughout the west-side Douglas-fir region.

KEYWORDS: Douglas-fir, lumber, forest industries.

Lane, Paul H., John W. Henley, Richard O. Woodfin, Jr., and Marlin E. Plank

1973. Lumber recovery from old-growth Coast Douglas-fir. USDA For. Serv. Res. Pap. PNW-154, 44 p., illus. Pacific Northwest Forest and Range Experiment Station, Portland, Oregon.

Lumber grade yields and recovery ratios obtained from old-growth Douglas-fir logs are presented for two log scaling and grading practices. The logs came from trees selected from commercial sawtimber stands throughout the west-side Douglas-fir region.

KEYWORDS: Douglas-fir, lumber, forest industries.

Lane, Paul H., John W. Henley, Richard O. Woodfin, Jr., and Marlin E. Plank

1973. Lumber recovery from old-growth Coast Douglas-fir. USDA For. Serv. Res. Pap. PNW-154, 44 p., illus. Pacific Northwest Forest and Range Experiment Station, Portland, Oregon.

Lumber grade yields and recovery ratios obtained from old-growth Douglas-fir logs are presented for two log scaling and grading practices. The logs came from trees selected from commercial sawtimber stands throughout the west-side Douglas-fir region.

KEYWORDS: Douglas-fir, lumber, forest industries.

Lane, Paul H., John W. Henley, Richard O. Woodfin, Jr., and Marlin E. Plank

1973. Lumber recovery from old-growth Coast Douglas-fir. USDA For. Serv. Res. Pap. PNW-154, 44 p., illus. Pacific Northwest Forest and Range Experiment Station, Portland, Oregon.

Lumber grade yields and recovery ratios obtained from old-growth Douglas-fir logs are presented for two log scaling and grading practices. The logs came from trees selected from commercial sawtimber stands throughout the west-side Douglas-fir region.

KEYWORDS: Douglas-fir, lumber, forest industries.

The mission of the PACIFIC NORTHWEST FOREST AND RANGE EXPERIMENT STATION is to provide the knowledge, technology, and alternatives for present and future protection, management, and use of forest, range, and related environments.

Within this overall mission, the Station conducts and stimulates research to facilitate and to accelerate progress toward the following goals:

1. Providing safe and efficient technology for inventory, protection, and use of resources.
2. Development and evaluation of alternative methods and levels of resource management.
3. Achievement of optimum sustained resource productivity consistent with maintaining a high quality forest environment.

The area of research encompasses Oregon, Washington, Alaska, and, in some cases, California, Hawaii, the Western States, and the Nation. Results of the research will be made available promptly. Project headquarters are at:

Fairbanks, Alaska
Juneau, Alaska
Bend, Oregon
Corvallis, Oregon
La Grande, Oregon
Portland, Oregon
Olympia, Washington
Seattle, Washington
Wenatchee, Washington

Mailing address: Pacific Northwest Forest and Range Experiment Station
P.O. Box 3141
Portland, Oregon 97208

The FOREST SERVICE of the U. S. Department of Agriculture is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives — as directed by Congress — to provide increasingly greater service to a growing Nation.